British Birds

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Three Shillings

July 1961

British Birds

AN ILLUSTRATED MONTHLY JOURNAL

Edited by

P. A. D. Hollom E. M. Nicholson
I. J. Ferguson-Lees Stanley Cramp

Photographic Editor: Eric Hosking

Hon. Editors: W. B. Alexander N. F. Ticehurst

Editorial Address: 30 St. Leonard's Avenue, Bedford

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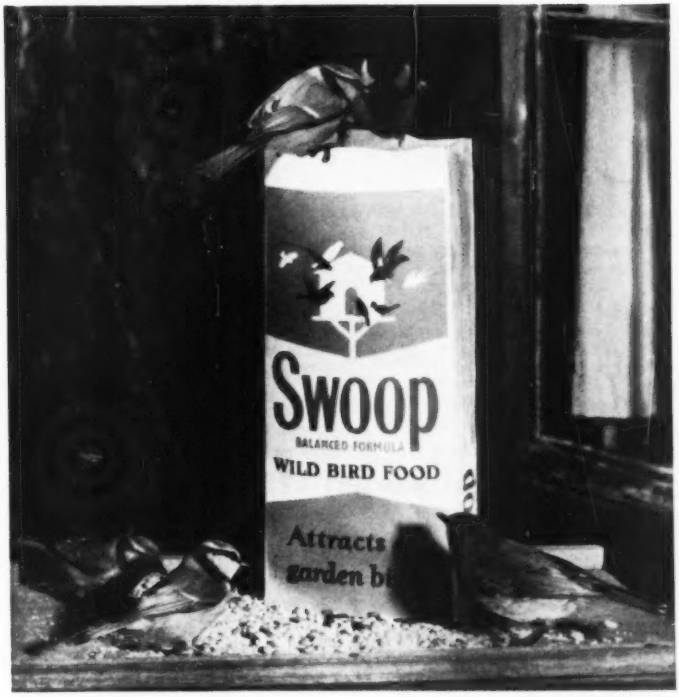

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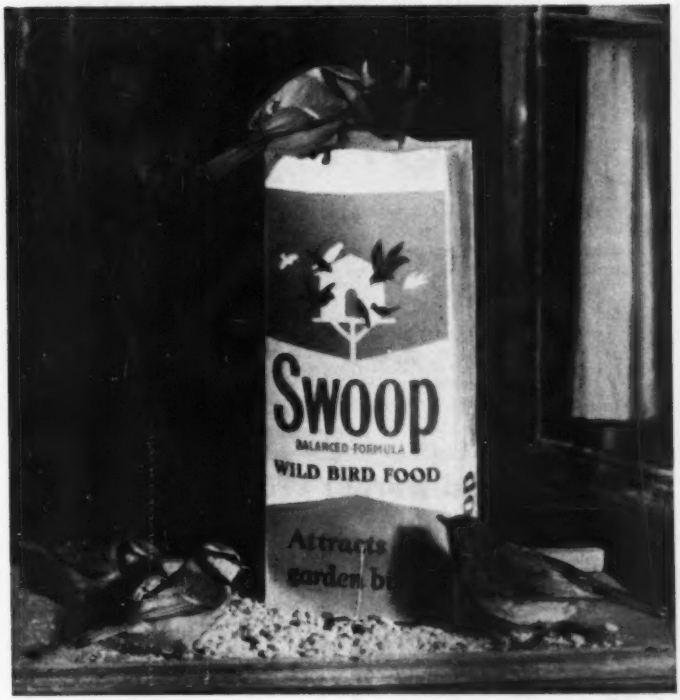

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British Birds

Vol. 54 No. 7

JULY 1961

The display of the Capercaillie

By Harry G. Lumsden

Ontario Department of Lands and Forests

BETWEEN 10th and 25th April 1960 I watched the behaviour of a number of Capercaillies (*Tetrao urogallus*) at a display ground in Aberdeenshire. The area in which these observations were made lay on the hill of Sluie on the north bank of the river Dee about two miles south-east of Kincardine O'Neil.

On 10th and 11th April I searched the area for Capercaillies, starting before the first light of dawn. The places where each bird was seen or flushed were carefully noted. This type of search was repeated on the 16th to make sure that no display grounds had been missed. On 12th, 15th and 17th April various hide positions were tested and preliminary observations were made of the behaviour of the birds. Between the 18th and 25th observations were made each morning on one of the display grounds. On the 13th a gale with rain squalls prevented early morning observations, but on this and many other days I was present on the hill during the day adjusting hides and searching for birds. No attempt was made to study the behaviour in the evening.

It is a pleasure for me to acknowledge here the great kindness of Brigadier and Mrs. B. C. Bradford of Kincardine, who gave me permission to watch the birds on their estate and who helped me make observations on the morning of 23rd April. I was also helped on several days by Mr. A. Duguid, and by Mr. C. Burges-Lumsden on the 22nd. I am most grateful to Mrs. E. G. Jermolajev who translated Russian papers for me and to my wife, Karin, who translated German and Swedish texts.

TIME AND PLACE OF CAPERCAILLIE DISPLAY

On the hill of Sluie display was well under way on 10th April and I do not know when the birds first started to visit the display grounds.

According to Fuschlberger (1956), Capercaillie cocks in Germany begin to display in March, or even exceptionally in late February, on their winter home range. Later on they move to the communal grounds where a number of cocks may hold territories and where most display takes place. Hainard and Meylan (1935) believed that display started much later in the high Jura, perhaps even as late as April. Kirikov (1947), writing of the Capercaillies inhabiting the pine-birch-larch forest of the Bashkir Nature Reserve, heard the first songs at display grounds on the last few days of March or the first in April. In the exceptionally warm spring of 1942 he heard two cocks singing on 20th February. He found that the migratory Capercaillies of the broad-leaved forest-steppe zone displayed on their arrival at their breeding grounds in the southern Urals about 16th to 19th April.

According to Fuschlberger, the spring display period in Germany may continue well into June and ends with the onset of the moult. He writes that the autumn period of display may begin as early as August, but does not become regular until September and October.

Kirikov draws a distinction between summer and autumn display. Between 1939 and 1945, in the Bashkir Nature Reserve, he found that the commencement of summer display, which took place on the display grounds, varied between 28th July and 17th August. This display period, which coincided with the moult from summer to winter plumage, ended between 22nd and 30th August. All the thirteen displaying birds he collected at this time proved to be fourteen to fifteen months old. He points out that autumn display did not take place on the display grounds and gives a number of dates in October when he heard birds singing. Capercaillie apparently continue to display irregularly throughout the winter in the Bashkir Nature Reserve and he mentions dates in November, January and February when cocks were heard performing.

In common with the "lek" species of grouse the same places may be used as display grounds year after year. Fuschlberger mentions one place where seven displaying cocks were shot out of the same tree over a period of ten years. Kirikov found the same places used year after year by the migratory population of Capercaillies that he studied.

I have no information on the continuity of use over the years of places chosen as display grounds on the hill of Sluie. I found two display grounds which were used each morning during the period of my observations. Both were found on 10th April on my first search of the hill. On that day the "east" display ground held eight birds of which at least three were cocks and two were hens. I was unable to determine the sex of the other three. On the "west" display ground there were four cocks and one hen. I heard three other cocks singing at other places on the hill.

TERRITORIAL BEHAVIOUR

On the "west" display ground, where I made most of my observations, it was possible to distinguish individually two of the three territorial males. One, which will be called the "south" cock, in whose territory I placed my hide, was a large and extremely black bird with very few white marks on his tail. The second, which will be called the "hill" cock, had lost a patch of feathers from the side of his head. A third, and I assume that the same bird occupied this area daily, had no special distinguishing features, and will be called the "east" cock. All three birds remained within well-defined areas, the boundaries of which did not touch those of their neighbours.

The three photographs on plate 50 were taken from the same position east of the display ground. On them I have marked in white the approximate boundaries of the cocks' territories. The "south" cock normally defended and displayed on a small knoll in an area about 10 yards wide and 30 yards long (plate 50a). The "hill" cock remained within an area 25 yards by 40 yards, the edge of which was about 25 yards from the edge of the "south" cock's territory (plate 50b). The "east" cock displayed in an area about the same size as that of the "hill" cock. Part of his territory, however, lay out of sight of my hide behind a fallen tree (plate 50c). The edges of his territory lay some 20 yards from the boundary of that of the "hill" cock and 40 yards from the easternmost boundary of the "south" cock's territory.

The species composition of the forest at this display ground was about 50% birch (*Betula alba*), 30% larch (*Larix decidua*), and 20% Scots pine (*Pinus sylvestris*). There were some thickets of young birch in the area. (Both the display grounds were situated close to the edge of the wood where there were clumps of larches; as these came into leaf the young shoots were heavily used as food.)

Between their territories there was a substantial strip of ground undefended by these birds. Here they ignored the non-territorial males which visited the display ground on most mornings. If this situation is typical of Capercaillie display grounds, the behaviour of this species contrasts with that of the Black Grouse (*Lyrurus tetrix*), and of the Greater Prairie Chicken (*Tympanuchus cupido*) and Sharp-tailed Grouse (*Pedioecetes phasianellus*) of North America. The territories of cocks of these "lek" species abut on one another and they spend much time in ritual and actual fighting as well as displaying at one another along their boundaries. Because of this important difference I do not believe that the term "lek" is appropriate when discussing a Capercaillie display ground.

These three Capercaillie cocks on the "west" display ground were

occasionally seen to leave their territories during the display period in the morning. The following instances were recorded.

On 22nd April a hen flew down out of a tree and settled on the ground about thirty yards west of the edge of the "south" cock's territory. When he followed her, she moved still further to the west and they both disappeared from view behind a dense thicket of young birches. They were joined by two more hens, by the "hill" cock, and by two non-territorial cocks. I was unable to see most of the subsequent activity, but I could hear repeated songs and occasionally the sound of beating wings.

On 20th April two hens flew down and landed in the unclaimed area between the territories of the "hill" and "south" cocks. Immediately both males, with breast feathers erected in threat display, hurried towards them. They stopped at the bottom of a shallow depression, some five yards apart, and performed several displays* at each other. Breaking off this activity, they approached each other with tails partly closed and held at an angle of about 70°. When their lowered heads were about a foot apart they stopped for a few seconds and pecked at each other. The blows, which did not seem to connect, appeared to be aimed at the other's beak. Suddenly the "hill" cock retreated two or three steps and carried out a sequence of movements which will be described later and which I have called the bowing display and have tentatively interpreted as a "high intensity threat display". They resumed the performance of displays for about half a minute, until the "south" cock turned to round up the hens and drive them into his territory.

On 22nd April a similar sequence of events took place. On this occasion the "south" cock reached the single hen first and placed himself between her and the "hill" cock. While the "south" cock was driving her into his territory, the "hill" cock ran down to interfere. He then performed three "high intensity threat displays" in rapid succession. Simultaneously with his last one, the "south" cock also executed this display. Each cock resumed the song display posture and, after completing several songs, returned to his territory.

I saw no real fights on the hill of Sluie in 1960, perhaps because the period of territory establishment was over when I started my observations. I have mentioned that the "hill" cock could be recognized by a patch of feathers missing from the side of his head. These may have been lost during a fight. Fuschlberger describes savage fighting between cocks at the time when they were establishing territories. Kirikov also reports bitter fighting and mentions one cock which even attacked the dead body of its adversary after it had been shot.

*See discussion under SONG DISPLAY.

Hainard and Meylan saw no real fighting in spite of many hours of observation. They described how four cocks and two hens displayed on 29th April: "The cocks passed and repassed untiringly one before the other, without paying the least attention to one another. During one and a half hours that morning that our observations lasted there was no combat, not even the least hostile gesture. There was no copulation. Later, about mid-May, at the time of copulation the display enters a second phase, that of the defence of territory" (my translation). Even during the territorial phase of the breeding cycle they saw no fights and believed that if they occurred they were far from being the rule.

BEHAVIOUR OF NON-TERRITORIAL COCKS

The "west" display ground was visited nearly every morning by varying numbers of cocks which defended no territories during the period of my observations. Most of those that I was able to examine at sufficiently close range appeared to be yearlings. They were usually appreciably smaller than the territorial cocks and their beaks were dusky instead of conspicuous ivory-green in colour. Their tails were shorter and the rectrices narrower. Chiefly, however, they differed in behaviour. They arrived on the display ground usually well after the territorial cocks had begun to display. When they had roosted in the trees near the display ground, they were later to descend. They stood still or circled the display ground and sometimes behaved aggressively towards one another. Even in the presence of females they did not perform the full song display, although they sometimes erected their tails and uttered a few clicks. On a few occasions they did not react in any way to the presence of hens.

Fuschlberger points out that yearling males usually perform the song display imperfectly at the beginning of the mating season and then display properly towards the end. Kirikov also comments on the incomplete songs of yearling males and presents data which suggest that these young birds start to visit the display grounds later in the spring than the older cocks. Nevertheless, he believes that yearlings of the South Ural population were sexually mature and points out that the average testes weight of yearlings collected in the spring fell above the minimal weight of the testes from birds two and three years old. He also quotes S. A. Khvatov (1861), who reported captive yearlings which bred.

The territorial cocks ignored these "yearlings" when they wandered into the unclaimed areas between their territories, and the "south" cock even tolerated one in his territory for about ten minutes one morning before he drove him away. This particular yearling stood quietly with neck extended forward, head and bill pointed slightly

TABLE 1—NUMBERS OF CAPERCAILLIES (*Tetrao urogallus*) VISITING THE "WEST" DISPLAY GROUND, ABERDEENSHIRE, APRIL 1960

	Territorial cocks	Non-territorial cocks	Hens
12th April	1	0	2
18th April	3	3	4
19th April	3	3	9
20th April	3	1	6
21st April	3	4	9
22nd April	3	3	4
23rd April	3	4	6
24th April	3	0	1
25th April	3	1	1

upward, beard not erected, and tail closed and lowered. Had he adopted an aggressive posture, it is likely that he would have been attacked immediately.

On two mornings a cock which may not have been a yearling appeared at the east end of the display ground. He did not perform song displays and did not defend a territory, although on one occasion he directed a bowing display at a yearling cock. Later the same morning he performed this display three times, but I was not able to see the object of his attention.

Table 1 gives the number of territorial and non-territorial cocks and the number of hens which visited the "west" display ground on the nine mornings for which I have complete observations.

BEHAVIOUR OF HENS

Capercaillie hens did not normally roost in the trees on the "west" display ground, but a single one certainly did so once and the same thing possibly happened on two other occasions. They usually spent the night elsewhere and flew into the trees at the display ground in the morning an average of 15 minutes after the first song was uttered by a cock. The times of arrival of the first hen are presented in Table 2.

On no occasion did incoming hens land directly on the ground; instead they usually settled high up in larches. Before 19th April no hens were seen to descend to the ground at all, although they sometimes worked their way to the lowest branches of the trees. Table 2 also shows the times when the first hen was seen to descend to the ground on each morning from the 19th to the 25th.

MORNING ACTIVITY AT THE "WEST" DISPLAY GROUND

Capercaillie are by no means the first birds astir in the morning. Among diurnal species I always heard Robins (*Erithacus rubecula*),

TABLE 2—TIMING OF MORNING ACTIVITIES OF CAPERCAILLIES (*Tetrao urogallus*) AND OTHER BIRDS AT THE "WEST" DISPLAY GROUND, ABERDEENSHIRE, APRIL 1960

All times are GMT

	18th	19th	20th	21st	22nd	23rd	24th	25th
Time of sunrise	4.54	4.52	4.49	4.47	4.44	4.42	4.39	4.37
Cloud conditions	0/10	light overcast	5/10	0/10	3/10	7/10	light overcast	heavy overcast
First song of Robin (*Erithacus rubecula*)	3.44	3.55	3.44	3.36	3.33	3.29	3.39	3.49
First call of Red Grouse (*Lagopus scoticus*)	3.43	3.47	–	3.26	3.36	3.05	3.36	–
First song of Song Thrush (*T. philomelos*)	3.49	4.02	–	–	3.40	3.36	–	3.55
First call of Capercaillie ♂	4.12	4.07	3.59	3.53	3.44	3.49	3.56	4.12
Arrival of first Capercaillie ♀	4.33	4.16	4.19	3.57	4.16	3.54	4.14	4.25
First ♀ to descend to ground	–	4.50	5.11	4.20	4.20	4.10	–	6.05
Number of copulations seen	0	0	1	4	1	7	0	0
Times of copulations	–	–	5.21	4.26 to 4.47	4.25	5.20 to 6.20	–	–

Song Thrushes (*Turdus philomelos*), Blackbirds (*T. merula*), Carrion Crows (*Corvus corone*), Wood Pigeons (*Columba palumbus*) and Pheasants (*Phasianus colchicus*) before the Capercaillie cocks started to call. On an average Robins started to sing 65 minutes, Song Thrushes 59 minutes and Capercaillies 46 minutes before sunrise between 18th and 25th April. On overcast mornings all species began later. Table 2 summarises the times when various species started to sing.

Between 6.00 and 6.30 a.m. GMT, about the time when the sun had mounted above the hills and the display ground was bathed in direct sunlight, the hens and non-territorial cocks usually left. Sometimes the hens took off directly from the ground, but more often they flew into the trees before leaving. With their departure the intensity of display rapidly declined. The territorial cocks usually remained until I frightened them on leaving my hide. On some mornings, however, one or more wandered away on foot shortly after the hens departed.

Fuschlberger mentions that cocks often return great distances to their home ranges after the display period in the morning is over. I saw some evidence of this movement on the hill of Sluie. On 15th April, at about 6.30 a.m., three large cocks came into the wood from the south-west, flying together; they were travelling very high, had crossed the Dee valley and were coming from the direction of Craigmore, a distance of at least 1½ miles. On 16th April, at about 6.20 a.m., a single cock came to the hill of Sluie from the east; this bird also was flying very high and had probably come about three-quarters of a mile from the Craiglash wood. On 22nd April, at 6.05 a.m., a small cock flew out of a pine plantation half a mile east of the hill of

Sluie and headed for its north face. On 24th April, at 6.57 a.m., a large cock came over the hill of Sluie from the north, flying very high; he planed down, swung to the west and disappeared round the end of the wood, a distance of at least two miles. I saw no Capercaillies flying such distances at other times of the day.

SONG DISPLAY

The displays of Capercaillies have frequently been described in the Continental literature, but there seem to be few good accounts in English. Witherby *et al.* (1941) quoted only Millais (1909) and Lloyd (1867), and depended chiefly on French and German authors for their descriptions. While concealed in a hide on the "west" display ground I was able to watch their displays very closely, occasionally at a range of one or two yards.

In common with that of other species of grouse, the sequence of movements and song which has been described as the courtship display has two functions. On a display ground it is used as an intimidating display when directed at other cocks, and when performed round a female on the ground it seems to have an erotic function. There may be subtle differences in the performance in different contexts, but I was unable to detect any.

There is great variation in the intensity with which this display is delivered. During rain showers, or late in the morning, cocks may only perform the first part of it and may not erect and spread the tail normally. On the other hand, it is delivered with great vehemence when two cocks are trying to intimidate one another or when one is displaying before a hen. Without the stimulus derived from the presence of hens, there may be lengthy periods between performances of the display, but when hens are present song displays are delivered continually.

In the song display the cock's tail was spread through an arc of about 180° and erected at an angle close to the vertical. The wings were slightly lowered and the carpal joints were held close to the body but outside the flank feathers which cover them at rest. In high intensity display the tips of the primaries were lowered so that they often scraped against obstacles on the ground or were brushed by the bird's toes as he walked. When chasing a hen, a cock might even hold his wings well out from his body. The white shoulder patches were exposed. The neck was extended and held almost vertical while the bill was pointed upwards. The long feathers beneath the bill were erected and stood out like a beard. With legs slightly bent, the bird moved about or stood still while performing the song. This began with a series of double clicking noises, which may be rendered as *ki-kop*, the two parts of which were normally uttered about half a second apart at

FIG. 1. Posture adopted by the male Capercaillie (*Tetrao urogallus*) during song display. The tail is spread almost vertically, while the wings are drooped and the white shoulder patches exposed. The neck is extended and the bill pointed upwards, with the long feathers of the chin and throat standing out like a beard, as the bird utters its curious song (pages 264-266)

first. The bill was opened on the first click and closed on the second. At the same time the oesophagal area was sucked in as if the bird suffered from hiccoughs. The nictitating membrane sometimes flicked over the eye and the head was jerked upward.

In the full song the intervals between these double clicks gradually shortened until the sounds almost ran together. This was interrupted by a note which sounded like a cork being withdrawn from a bottle. On 20th April a cock displayed to a hen a yard from the hide in which I was concealed. In every song heard at such close range a deep grunt, which reminded me of the *thump* uttered by a strutting domestic turkey, was emitted at the same time as the "cork" note. I could not hear this when the bird displayed more than seven yards from the hide. I am unable to say whether this sound is produced with the "cork" note in every song or whether it is reserved for high intensity display before a hen.

The third part of the song, which has been likened to the sound of a scythe being whetted, followed immediately. Three or four paired scraping notes were uttered while the bird opened and closed its bill and jerked its head up and back. It tilted its body forward and slightly erected the breast feathers as it uttered these notes. Fuschlberger estimated that this part of the song spanned three to five seconds.

Many Continental writers have commented on the fact that Capercaillie cocks are oblivious to danger, such as the approach of a man, during the "whetting" part of the song. This loss of perception is exploited by Continental sportsmen who move only during this period while stalking cocks during the spring shooting season. There has been some speculation on whether the bird closes its eyes while "whetting". However, I had many excellent opportunities of observing the eyes of one male while it sang, and can say that at no time was this bird seen to close its eyes during the final "whetting" phase of the song. Sometimes it was seen to move the nictitating membrane, but this structure never covered the eye throughout the period of oblivion.

The birds watched on the hill of Sluie in 1960 seldom performed the complete display from trees. They often clicked for some minutes in the early morning from a branch but soon flew down to perform the full song on the ground. Fig. 1 illustrates the posture adopted by a singing male.

The sounds made by a Capercaillie cock during the song display are very subdued and do not carry far. At a distance of 80 yards the "hill" and "east" cocks could be heard "whetting" only under the most favourable circumstances, and at 100 yards only the "cork" note could be distinguished. Hainard and Meylan compared the volume and carrying power of the song to those of some other birds and stated that it is a little less feeble than those of the Redstart (*Phoenicurus phoenicurus*), Yellowhammer (*Emberiza citrinella*) and Whitethroat (*Sylvia communis*).

It might be worth noting here that the Capercaillie and the Stone Capercaillie (*T. urogalloides*) of eastern Siberia are the only grouse in the world which point their heads and bills vertically during the song display. Both these species have unusually broad skulls with a relatively great inter-orbital width. In these characters they are unique among the Tetraonidae. I noticed that while in the courtship posture, with bill pointed upward, cocks were able to follow hens and react to one another in such a way that I believe they suffer from little if any defect of forward vision, that is, under the bill. The two photographs appearing on pages 25 and 30 of Tysk and Parling (1959) suggest that a Capercaillie cock's eyes are so set in its head that it may even possess stereoscopic vision in this plane. At the same time,

while moving in this posture they seem to be remarkably clumsy, tripping over branches and objects on the ground. This suggests that their downward vision during song display is not good.

FLUTTER JUMP DISPLAY

With the possible exception of two North American species, the Sage Grouse (*Centrocercus urophasianus*) of the plains and the Ruffed Grouse (*Bonasa umbellus*) of forests, the males of all grouse perform an aerial display, the function of which is advertisement of territory. Some species commonly utter a loud call in conjunction with this performance. In the case of the Ruffed Grouse, this aerial advertising display has evolved into a terrestrial form in which the bird usually stands on a log and "drums" with its wings. Its near relative, the Eurasian Hazel Hen (*Tetrastes bonasia*), may perform on the ground or in the air.

The Hamerstroms (1960) have summarised the observations of a number of authors on the flutter jumping of Blackcocks and Greater Prairie Chickens. They concluded that "There is general agreement, if no real proof, that flutter jumping serves to advertise the display ground. At the same time there is much evidence that flutter jumping is a response to other birds."

On the hill of Sluie the Capercaillies performed a rather clumsy flutter jump on their territories. The birds usually ran a few paces and launched themselves into the air with loud wing beats, flew some seven to ten yards, and settled. They seldom rose more than about three feet from the ground. There was often a flash of white from the under wing-coverts and axillaries as one took off and landed. No advertising call was uttered in association with this display.

Hainard and Meylan noted that "all the cocks of a display ground normally execute them" (the advertising flights) "at the same time, for when one cock starts to jump, like a command his movement is repeated by all his companions in the neighbourhood" (my translation). It was the movement of other Capercaillies, either cocks or hens, in the vicinity of the display ground which seemed most often to stimulate this activity. For example, on 19th April I noted details of 20 flutter jumps carried out by three males displaying on their territories; this was between 4.07 a.m. when the first activity by a cock was recorded and 6.30 a.m. when I left the hide. A hen flying down to the ground stimulated one display flight. Four hens moving from one tree to another above the display area stimulated six. Two cocks leaving the display area elicited four, and three hens flying away another four. In the remaining five cases I was unable to detect the stimulus. Yearling cocks which did not defend territories were very seldom seen to perform advertising flights.

FIG. 2. First of two postures adopted by the male Capercaillie (*Tetrao urogallus*) during bowing display. When two males are disputing, the one initiating the display moves back two or three quick paces and raises the head and neck. The neck and tail are now both at an angle of about 70°, the bill is tilted slightly upwards and the feathers on the lower neck and upper breast are erected so that their tips stand out to present a ragged appearance (see pages 269-270)

THREAT DISPLAY

Fuschlberger has pointed out the difference between the song posture (*Balzstellung*) and the threat posture (*Zornstellung*), and Hainard and Meylan published a sketch of the latter.

I witnessed the threat display frequently. It was usually adopted when one of the territorial males drove another male from his territory, or when the "south" and "hill" cocks advanced on one another in the unclaimed area between their territories. The posture was similar to that adopted in song display, but the neck was held further forward and the bill was not pointed upward but was retained in a more normal position. The feathers on the lower neck and upper breast were erected. This destroyed the sheen of this part of the bird's plumage and produced a dense black area. This posture was not always adopted under aggressive circumstances, however. The "south" cock was twice seen to drive yearling males out of his territory without ruffling the feathers on his breast.

BOWING DISPLAY

The display which I have called "bowing" was performed during disputes between males and it appears to be a high intensity threat. I have already mentioned the disputes which took place between the "hill" and "south" cocks in the unclaimed area between their territories. They were crouched with their bills about a foot apart, pecking at one another, when the bird initiating the display moved backwards two or three quick paces and raised its head and neck to an angle of about 70°. The head and bill were tilted slightly above the horizontal. The feathers on the upper back of the neck were slightly erected, but their tips lay flat to present a smooth appearance. On the rest of the neck and on the upper breast the feathers were also erected, but their tips stood out to present a ragged appearance. The beard was fully extended. The tail was also held at about an angle of 70° and was partially folded. Plates 30 and 31b in Andrew (1958), photographed by Kurt Ellström, Enar Sjöberg and Jonas Svensk, illustrate this posture very well. It is not, however, used when the bird utters its song. The song display posture is shown on plate 29 of the same paper.

FIG. 3. Second of two postures adopted by the male Capercaillie (*Tetrao urogallus*) during bowing display. After uttering two guttural calls in the upright position shown in Fig. 2, the bird quickly bows the head and neck forward until they are parallel to the ground and it is crouching. The two calls are now repeated more rapidly, and the whole series of four sounds has been likened to the noise of vomiting

In this upright position (Fig. 2) the bird uttered two gutteral calls and, with a quick movement, bowed the head and neck forward until they were close to the ground and parallel to it. In this new position (Fig. 3) the two calls were repeated more rapidly. This series of calls can be represented as *roo----roo----roo-roo*. It can be likened to the sound of a person vomiting and, indeed, German authors have named this the "*Wurgen*" or "*Wörgen*" call. The entire behaviour pattern took about two seconds to complete and the calls were uttered in about one and a half seconds.

I have already mentioned the performance of this display in an aggressive setting by the non-territorial cock which may not have been a yearling. This bird moved forward about four paces with neck erect and feathers ruffled before uttering the calls. In its case the tail was nearly fully spread and held at an angle of 90°.

Hainard and Meylan describe this behaviour pattern and mention that they have not entirely grasped the very complex meaning ascribed to it by German authors. Fuschlberger reports that the "*Wurgen*" call, with or without the associated movements, may be uttered by yearling males before roosting.

More observation is needed before the significance of this display is fully understood. I have tentatively interpreted it a "high intensity threat display" because it appeared in that setting and seemed to be homologous to a similar display which is performed in like circumstances by the Spruce Grouse (*Canachites canadensis*) (Lumsden in press). The Black Grouse, Greater Prairie Chicken, Sharp-tailed Grouse and Sage Grouse do not seem to have a homologous display.

PRE-COPULATORY DISPLAY

Capercaillie cocks do not seem to have a specialised pre-copulatory display like the nuptial bow of the Blackcock and Greater Prairie Chicken. What would appear to be a pre-copulatory display performed by hens has been described by Fuschlberger. He reported sinuous movements of the neck, the head stretched back until it almost touched the back, then moved sideways, forwards and downwards.

Höglund (1957), writing of captive birds, described the hen moving with short measured steps, her plumage held in close to her body, and making feeble nodding movements with her head, with her beak pointed more and more towards the ground. She finally lay down with outspread wings, her beak resting on the ground.

I did not see any pre-copulatory displays quite like these. Before mating, hens usually squatted on the ground with half open wings. Sometimes one wobbled from side to side or moved the wings in and out from a partially drooped to a half open position. Often the head, slightly lowered and held close to the breast, was turned through a

45° angle from one side to the other. This soliciting posture was sometimes held for as long as seventy seconds before the cock mounted. On one occasion a hen solicited continuously for about two minutes, but three times moved away a few yards with a quick run before the cock could mount. On another occasion the cock left two soliciting hens to round up a third and drive her into his territory.

MATING

Between 20th and 23rd April I witnessed thirteen copulations. I may have missed some on 22nd April when much display activity took place behind a screen of birches; and on the 25th when a hen spent some time on the ground out of my sight in the territory of the "east" cock. The number of copulations seen each day and the time limits within which they occurred are given in Table 2. Twelve of the matings I saw were performed by the "south" cock and only one by the "hill" cock. Among Black Grouse, Greater Prairie Chickens and Sharp-tailed Grouse, copulation is often interrupted by cocks from adjacent territories. In no case did I see any attempt at interference among the Capercaillies on the "west" display ground.

Before mounting, the cock sometimes performed several full song displays beside a soliciting female. He then grasped the feathers on the back of her head and stepped on to her back. This was carried out in a slow deliberate manner and sometimes with some clumsiness. His tail was half closed and held at an angle of 45°; during the act of insemination it was swung down until it pressed on the ground. There was no violent wing flapping as recorded by Lack (1939) and Höhn (1953) for the Black Grouse.

I had no way of distinguishing the hens which came to the "west" display ground and cannot say if the same ones were mated on successive mornings. On 23rd April one hen was mated twice by the "south" cock, at 5.54 a.m. and 5.58 a.m.

Fuschlberger reports that copulation usually takes place during the hours of the afternoon at "mating grounds" (*Tretplatz*) which may be quite far from the display ground. I have no observations that would support this statement and did not see or flush parties of birds containing both sexes on the afternoons that I spent on the hill.

POST-COPULATORY DISPLAY

Höglund, writing of his captive birds, mentions that after copulation the hen jumped round the cage. Sometimes she attacked the cock, leaping at him and pecking vigorously at his beak and throat. The restraining influence of the pen may have affected the behaviour of these birds, however, for I certainly saw no activity resembling this on the hill of Sluie. After copulation the hen invariably ran a few

paces with her neck extended forward and her neck feathers erected. As she ran she vigorously shook her wings and then stopped to preen. The cock usually resumed the performance of the song display.

SUMMARY

(1) The displays of Capercaillies (*Tetrao urogallus*) were studied at a display ground in Aberdeenshire in April 1960.

(2) Three territorial cocks held territories, the boundaries of which did not touch. Non-territorial cocks were tolerated in the unclaimed area between the territories.

(3) Up to four non-territorial cocks visited the display ground during the period of activity in the early morning.

(4) Up to nine hens visited the display ground at one time.

(5) Copulations were observed between 20th and 23rd April.

(6) Descriptions are given of the song, flutter jump, threat, bowing, pre-copulatory and post-copulatory displays.

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Studies of less familiar birds

112. Little Auk

By P. P. G. Bateson

Photographs by W. Puchalski and G. R. Shannon

(Plates 43-48)

A LARGE COLONY of birds is spectacular in any part of the world, but in the comparatively birdless landscape of the far north the huge

auk colonies are extraordinarily impressive. While in the higher latitudes the land can provide little in the way of food, the sea, unexploited for the greater part of the year, supports dense concentrations of animal plankton in the summer when the small planktonic plants, on which they feed, multiply. In regions north of the Atlantic the principal species to exploit this colossal source of food are the Brünnich's Guillemot (*Uria lomvia*) and the Little Auk (*Plautus alle*). The Little Auk or Dovekie is probably the more common of the two species within its breeding range from the western Palearctic to the eastern Nearctic and elsewhere its numbers are rivalled only by those of the tiny Least Auklet (*Aethia pusilla*) of the north Pacific (Salomonsen 1950, Fisher and Lockley 1954).

The Little Auk breeds almost exclusively in the high arctic zone where its numerous colonies may vary in size from a few hundred pairs to well over a million (at Thule, Greenland). In the low arctic there are scattered groups of only a few breeding birds. These, however, are probably the remnants of much larger colonies that have been depleted as a result of the gradual warming up in the Arctic. There is no doubt that, within the last hundred years or so, numbers in southern Greenland and in Iceland have fallen markedly and some colonies have disappeared altogether (Foster *et al.* 1951, Salomonsen 1950).

Little Auks nest in rock crevices and colonies are thus most often found in screes and in the talus collecting beneath crumbling cliffs. Arctic Foxes (*Alopex lagopus*) can easily clamber about such sites and so the birds nest as far into the collected stones as they can get—often more than a yard from the surface. However, the auks will also breed on cliffs that are sufficiently eroded or fissured and there the nests may be very close to the surface. Colonies may occur at any height from sea-level to over 1,500 feet—well above the snow-line. Although most are fairly near the open sea they can often be found far up valleys and into the fjords (where the birds do not usually feed); Longstaff (1924) mentioned a colony that was 20 miles inland.

The lower colonies can often be detected from a great distance, as Løvenskiold (1954) points out, by the thick growth of yellow-green moss beneath them; this is mostly *Dicranum*, according to Salomonsen. Sometimes the higher colonies are also conspicuous from afar, when the snow around them has been stained red with droppings. As one gets closer, screams of seemingly hysterical witch-like laughter are brought on the wind and the birds themselves look rather like swarming insects as their flocks wheel in front of the colony (plate 46a). The laugh-like call, a shrill, descending chatter, is given only in the breeding season; it is noticeably "contagious" and when one bird calls others are also stimulated to do so. This description probably covers a variety of differently motivated calls; however, the one given as the birds wheel

in front of the colony appears to be associated with fear of a possible predator.

Although the Little Auk can be quite tame and is thus not a difficult bird to watch at some of its more accessible colonies, surprisingly little is known about its behaviour. The birds begin to arrive on their breeding grounds in April and May (Clarke 1898, Salomonsen 1950), but after spending a short while at the colony they depart for the sea and return again a few days later; such flights from the colony are repeated several times. This sort of behaviour seems to occur in many sea-birds at the beginning of the breeding season. To begin with, the Little Auks are clearly frightened when they land in the colony-to-be, but the fear gradually wanes or becomes subordinated to an increasingly strong drive to reproduce. By the beginning of June they have settled permanently in their colonies and the first eggs are laid about ten days later. Nothing is known about pair-formation, but Foster *et al.* (1951) describe a display which may be a part of courtship. The birds face one another, bow and then shake their heads, probably rubbing bills as they do so.

Normally only one egg is laid; this is incubated by both sexes. The chick (plate 47b) remains within the nest hole until a few days before it is due to depart from the colony in the latter half of August. At the end of the fledging period many chicks are to be seen at the hole-entrances flapping their wings; needless to say, at the slightest sign of any danger they scuttle back inside.

Not surprisingly, the Little Auk, numerous as it is, has attracted a large number of predators. Of these the most persistent and devastating are the Glaucous Gull (*Larus hyperboreus*) (plate 47a), the Arctic Fox and, in Greenland, Man. Most colonies of any size have at least a few pairs of Glaucous Gulls nesting near-by. The auks are really safe only in their nest holes, for the big gulls can catch them on the wing with comparative ease. If an auk attempts to escape by diving into the sea, its pursuer has been seen to hover over the surface watching its progress under water and attacking it as soon as it comes up for air (Bent 1919); more commonly, however, the gull settles on the sea and appears somewhat mystified when the Little Auk surfaces some twenty yards from it. The gulls take their greatest toll from the recently fledged birds, evidently finding them much easier to catch on the wing (Løvenskiold 1954). Thus there is a strong premium on a synchronised departure from the colony by the young auks. The Arctic Fox manages to dig out a few nests, but also lies in wait in the colony and pounces on incoming auks. The foxes are so successful that Braestrup (1941) believes that in districts such as Thule in Greenland, where the Little Auk is particularly abundant, they feed exclusively on these birds in summer; they even build up caches of dead

auks that provide a large part of their winter food as well. Like the Glaucous Gull and the Arctic Fox, some of the Greenland Eskimos are almost entirely dependent on the Little Auk colonies for food (Salomonsen 1950). Other less important predators are the Arctic Skua (*Stercorarius parasiticus*) and, in Greenland, the Gyr Falcon (*Falco rusticolus*) and Raven (*Corvus corax*). Nor is the Little Auk safe in the sea where it is liable to be snapped up by large fish and seals; it has even been found in the stomach of the White Whale (*Delphinapterus leucas*) (Bent 1919).

At sea the Little Auk is found most commonly near the pack ice where the small planktonic Crustacea on which it feeds (principally Copepoda, Mysidacea, Amphipoda and Euphausiacia) are most plentiful. When the bird dives in search of food it usually stays submerged for about half a minute, during which time it may swim a considerably horizontal distance while remaining comparatively near the surface. The majority of the planktonic animals on which the Little Auk feeds rise to the surface waters only during the night (see Hardy 1956) and, indeed, at their colonies the birds do appear to be coming and going more frequently at that time; Foster *et al.* (1951) found that in Iceland the auks were most active between 10 p.m. and 4 a.m. In the continuous daylight of the Arctic summer the detection of plankton would not be such a problem, but it is not known how the birds find their food on winter nights. By whatever means the plankton may be caught, it is collected in a pouch opening beneath the tongue. This throat pouch, which can be greatly distended with food (plate 44b), is very noticeable in plates 43-45. The similar pouches that are found in other auklets (*Aethia*) (Portenko 1934) are probably homologous. Since this is one of several characters that are shared by the Little Auk and the auklets, there may be closer affinities between these species than is suggested by spreading them among several genera.

In the Antarctic the niche occupied by the auks in the Arctic is filled by the diving petrels (Pelecanoididae) (Murphy 1936). The convergence between the two groups is remarkable, but especially striking is the similarity between the Little Auk and the Magellanic Diving Petrel (*Pelecanoides magellani*). Not only are both species highly adapted for feeding under water, but also the petrel's plumage bears a marked resemblance to the winter plumage of the Little Auk.

The details of the Little Auk's summer plumage can be seen clearly in plates 43-45. The winter plumage is illustrated by plate 48; the black (really very dark brown) feathers of the throat, breast and ear-coverts are replaced by a rather smudgy white. Although the rapid wing beat is typical of the auks (giving the illusory impression that they are flying very fast), the Little Auk, as *The Handbook* points out,

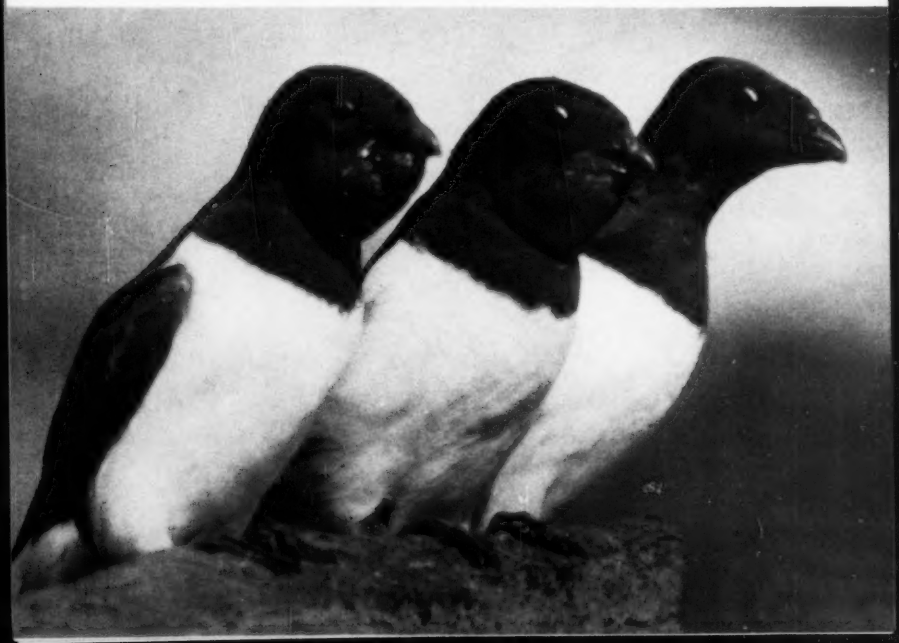
looks almost like some odd Passerine at a distance. This, together with the combination of small size (plates 43 and 48) and stumpy bill (plate 44a), make mis-identification unlikely. Nevertheless, an inexperienced observer might be misled by immature Puffins (*Fratercula artica*) and Razorbills (*Alca torda*) which have much smaller bills than the adults; even so, their bills are not short and stumpy.

By the beginning of September the Little Auks have all departed from the colony and are gradually moving south. Although they winter up to the southern limit of the firm ice they begin to appear in the middle of the Atlantic by mid-October and enormous numbers winter over the Grand Bank of Newfoundland (Rankin and Duffey 1948). According to Rankin and Duffey, the Little Auk avoids the Gulf Stream, presumably because the warm current is much poorer in plankton.

Small numbers of Little Auks occur round British coasts throughout the winter, but the majority of ornithologists are likely to come across them only at the time of their "wrecks" when odd ones can even occur far inland. The associated "flights", when large numbers of birds migrate south, are seen much more clearly on the eastern coast of the United States (Snyder 1953). The ultimate cause for the flights and wrecks, which occur only at the southern limit of the winter range, is still not properly understood. The proximate cause for the wrecks is almost certainly high wind. This causes turbulence in the surface waters where the auks feed and, as a consequence, the plankton do not come up so far in their daily vertical migrations. A failure in food supply would account for the starved condition of the wrecked birds, as Murphy and Vogt (1933) and Sergeant (1952) have suggested. However, Murphy and Vogt obtained evidence that birds found in the early stages of the 1932 wreck, which lasted for several days, were not starved. The explanation might be that the auks normally allow themselves to drift with the storm, but, on finding themselves up against a lee-shore, attempt to battle against the wind and draw fatally on their stores of energy. Probably the indirect effect of the wind, through the food supply, and the direct effect on the birds themselves both play a part. All this does not explain why wrecks do not occur in the northern part of the wintering range where storms are, if anything, more common, or why the Little Auks should move south from their normal wintering area to more temperate latitudes in some years and not in others. Murphy and Vogt suggested that there might be a periodic build up in the Little Auk's numbers that could be relieved only by a destructive migration southwards comparable to the mass movements of the Lemmings (*Lemmus lemmus*). However, Fisher and Lockley (1954) analysed the occurrence of flights and wrecks and found that they were quite irregular so that this explanation

PLATE 43. Little Auk (*Plautus alle*), Spitsbergen, July 1957—little larger than a Starling (this is near life size), black and white but for deep brown head and breast. Its short neck, stumpy bill and food-packed throat give it a frog-like look. The set-back legs are an adaptation to marine life (pages 272-277) (*photo: W. Puchalski*)

PLATE 44. Little Auks (*Plautus alle*), Spitsbergen, July 1957. The close-up shows the small bill, the dense feathering typical of water birds, and the patch which, from afar, looks like the white of the eye. Below, full and empty throat pouches show how much food can thus be carried (page 275) (*photos: W. Puchalski*)



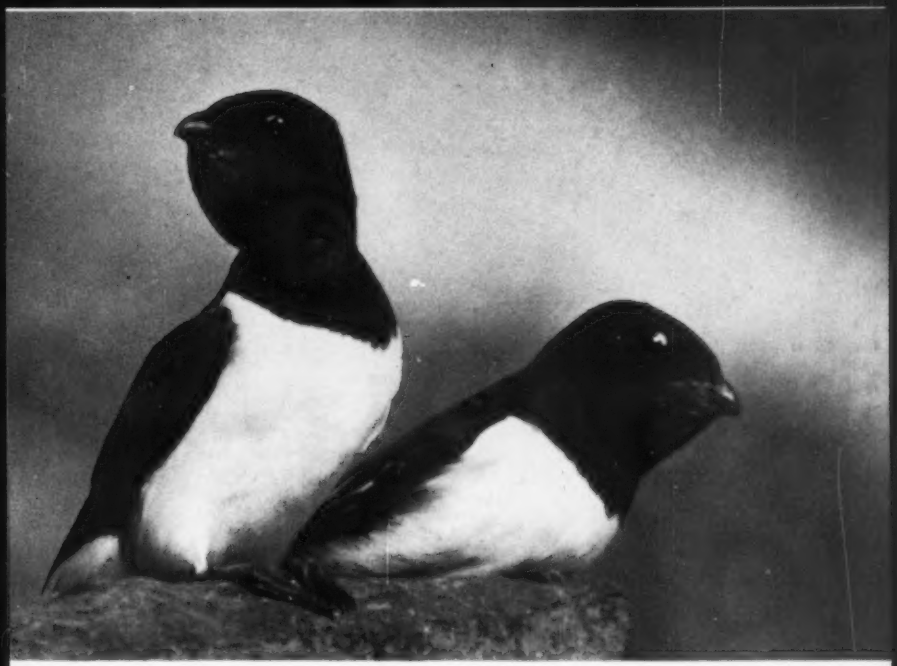


PLATE 45. Little Auks (*Plautus alle*), Spitsbergen, July 1957. Above, pair in two common rest attitudes, on the tarsi and on the belly; male and female look alike. Below, scapulars are lined and secondaries tipped with white; wings seem long in flight, but actually do not extend beyond the tail (*photos: W. Puchalski*)

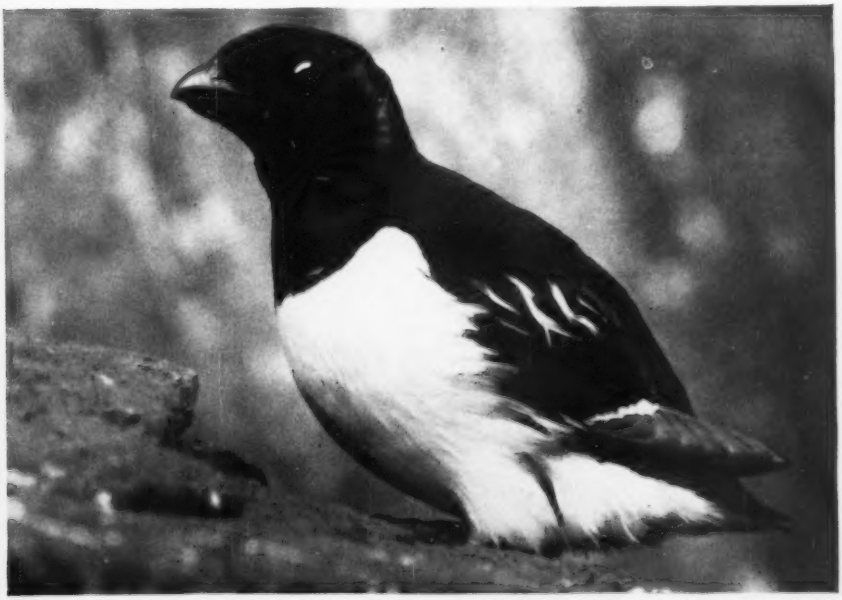


PLATE 46. Little Auks (*Plautus alle*), Spitsbergen, July 1957. A fraction of the colony wheeling round; colonies may number many thousands (page 273). The slender wings move very fast and give a false impression of speedy flight. Below, off-duty birds grouped in the sun on rocks near the colony (*photos: W. Puchalski*)

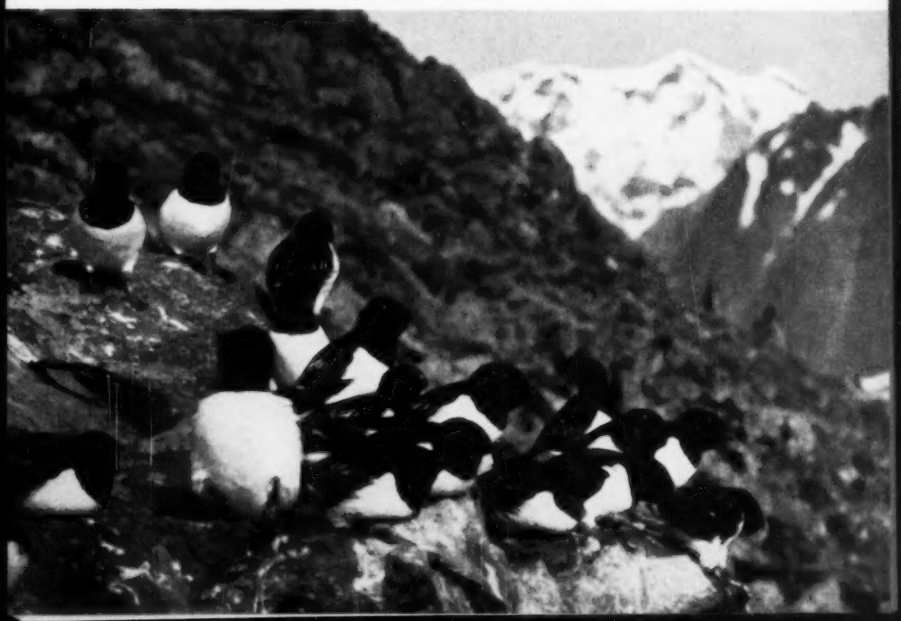


PLATE 47A. One of the most serious predators of Little Auks (*Plautus alle*) is the Glaucous Gull (*Larus hyperboreus*); this bird can easily catch them on the wing. Nearly every colony is terrorised by at least a few pairs nesting not far off (page 274)

PLATE 47B. Young Little Auk a few days old (note the egg tooth). It is brown-black above and on the throat, and paler below. It has been taken from the unlined crevice which serves as the nest, deep in the talus (page 273) (*photos: W. Puchalski*)

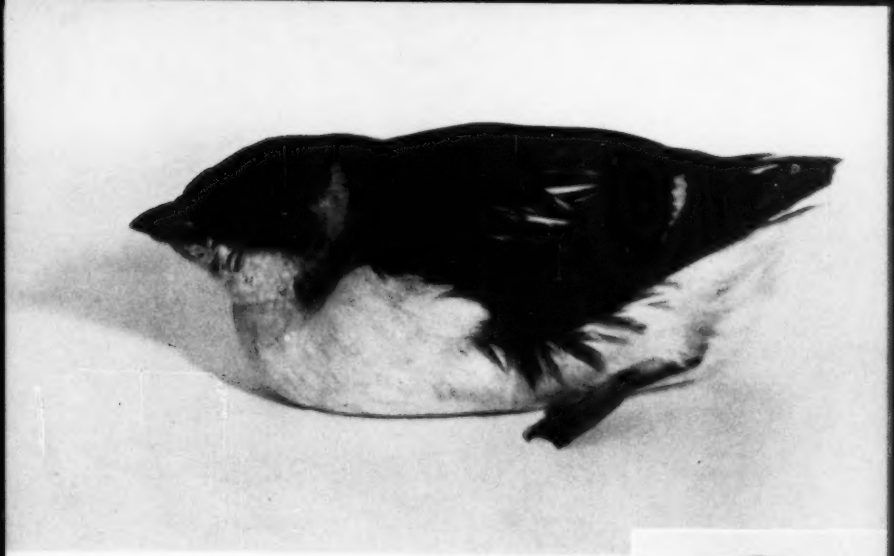


PLATE 48. Little Auk (*Plautus alle*) in winter, Kent, December 1955. Now the breast, throat and ear-coverts are a rather smudgy white, though this colour is often purer than it appears here. The white eye-patch, scapular streaks and tips to the secondaries stay the same. Comparison with the two hands illustrates the small size (*photos: G. R. Shannon*)

PLATE 49. Bald Robin (*Erithacus rubecula*) and two Blue Tits (*Parus caeruleus*) at a feeding post, Hertfordshire, February 1961. The Robin died four days later and a post-mortem examination showed an unidentified fungus on the head and chin. The bird, a female, was in a very poor condition and it is not known if the fungus was the cause of death or purely secondary (pages 289-290) (*photos: Eric Hosking*)

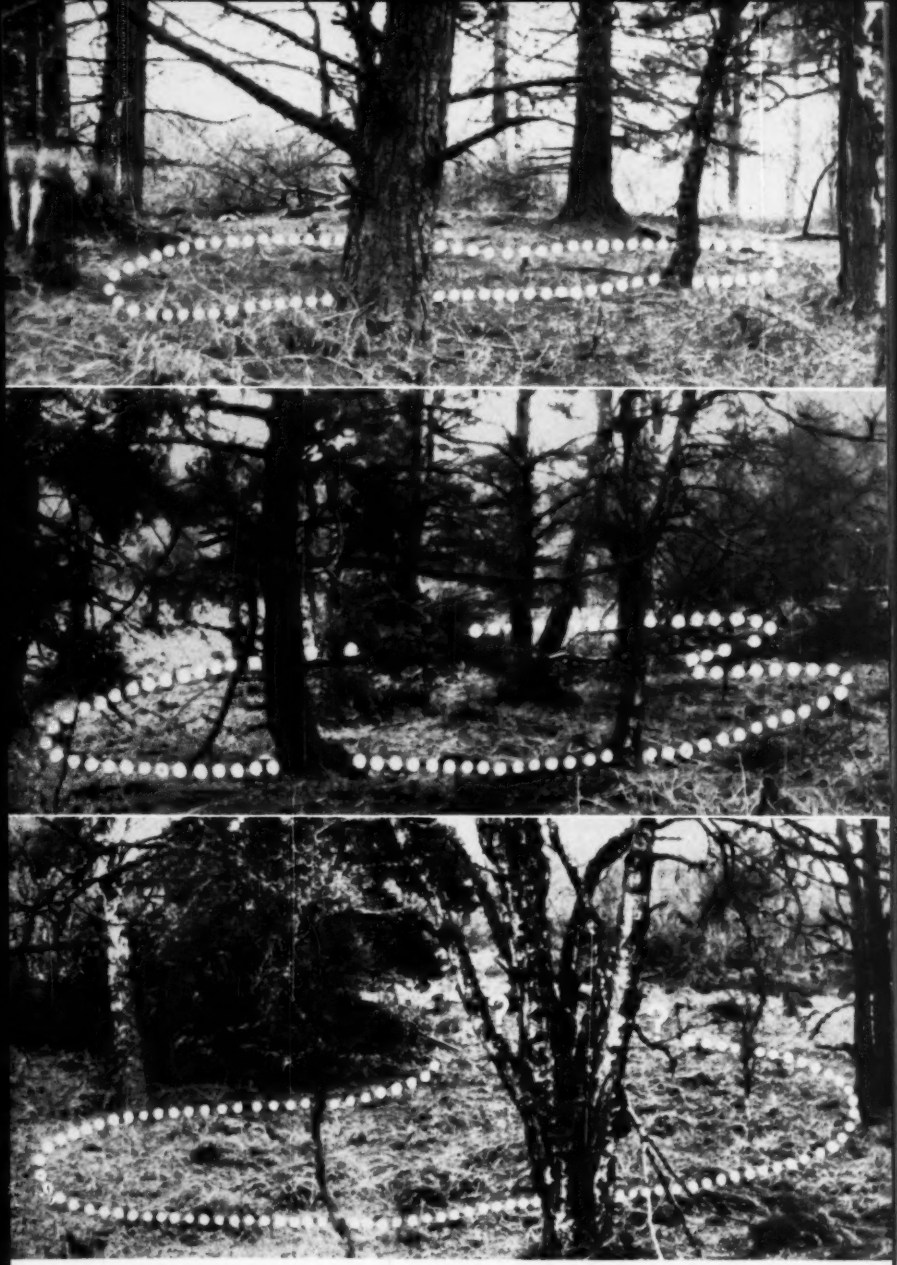


PLATE 50. Display grounds of male Capercaillies (*Tetrao urogallus*) in pine, birch and larch area, Aberdeenshire, April 1960 (pages 257-272). The topmost one (named "south") measured 10 yards by 30, each of the other two ("hill" and "east") 25 by 40; 20-40 yards of unclaimed terrain separated them (*photos: H. G. Lumsden*)

would appear to be unlikely. Possibly prolonged bad weather in the North Atlantic and the consequent shortage of food drives the birds south. Other factors not directly connected with storms might adversely affect the planktonic population so that there was no longer enough food to support all the auks in their normal wintering area. Whatever the cause, the active southerly movements (the flights) are well known (Snyder 1960); these may or may not be followed by a wreck. In warmer waters the concentration of plankton is lower and more patchy and although the immigrants probably survive in calm weather a storm, which would not seriously affect them further north, might cause their mass destruction in temperate latitudes.

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Sex and age counts of wintering thrushes

By J. H. Phillips

THE SERIES OF sight-record sex counts of wintering Blackbirds (*Turdus merula*) given by the Venables (1961), taken with those quoted in their previous paper (1952), provide interesting evidence for what would appear to be a wide-spread phenomenon in Britain—a preponderance of males between November and February. The collection of sight-records, however, has certain limitations and, indeed, drawbacks

from the point of view of analysis. The greater conspicuousness of males, for example, introduces an unknown error, and, in addition, accurate ageing of birds is impossible. Some of the records quoted were taken from several years, so that no account is taken of possible annual variation. Records of birds caught in conventional traps may also be unreliable, as indicated by Lack and Light (1941) who argue that, by analogy with Robins (*Erithacus rubecula*), male Blackbirds may enter traps more freely than females. It is possible that even bat-fowling records may be misleading, owing to sexual segregation in roosts, unless a sufficiently large sample is taken. It is therefore of considerable interest that the records cited below, which were all obtained by the operation of scattered mist-nets, agree very closely with the results given by Venables.

Mist-netting would appear to be an excellent method of obtaining completely random samples of a given population of a species. Fulbourn Fen, at Little Wilbraham in Cambridgeshire, contains several areas of thorn bushes which provide an ample food supply for a number of Redwings (*T. musicus*) and Fieldfares (*T. pilaris*) during October, and which are used by these species and Blackbirds and Song Thrushes (*T. philomelos*) as a roost during this and subsequent months, the numbers falling off again during January. Mist-nets were used there on five occasions between the end of October and the beginning of December 1960 and twice during January 1961, birds being taken mostly between the bushes at dusk while flying to the actual roost.

C. J. Mead has kindly provided records of birds caught in a similar way at Coton, Cambridgeshire. Here there was a roost of Song Thrushes and Blackbirds in an area of thorn bushes about 20 yards wide and 250 yards long between two fields. Mist-nets were sited at intervals across the hedges and lines of bushes leading towards the roost.

The birds caught were examined in the hand, and were aged and sexed as far as possible by the characters given in *The Bird in the Hand* (Cornwallis and Smith 1960). Thus, using the colour of the greater coverts, birds with "outer (unmoulted) feathers paler than new inner ones" were considered to be in their first winter, whereas males with uniformly black and females with uniformly dark olive-brown greater coverts were considered to be adult. Snow (1958, p. 23) states that "the change of the beak and eye-rim to yellow in the male normally takes place in the course of the first winter, but the exact time varies a great deal. Some young males show yellow at the base of the beak in September and have fully yellow beaks by the end of November: others still have dark beaks in March." This character was not used for ageing. Wing colour, although it has been shown by retrapping to be not an absolutely rigid criterion, would seem to be considerably

TABLE 1—NUMBERS OF BLACKBIRDS (*Turdus merula*) CAUGHT AT FULBOURN FEN, CAMBRIDGESHIRE, IN THE WINTER 1960-61

Ringers were S. Boddy (SB), S. L. B. Lee (SL), C. J. Mead (CM) and J. H. Phillips (JP). Abbreviations used in this and other tables are the standard ones for adult (ad.), first-winter (1stW.) and full-grown but of uncertain age (f.g.)

Ringers	Date	Ad. ♂	Ad. ♀	1stW. ♂	1stW. ♀	F.g. ♀	Total
JP, SL	30 Oct.	2	1	13	8		24
JP, SL	6 Nov.	11	10	17	13	2	53
CM, SB	8 Nov.	2	4	11	2	2	21
JP, CM	12 Nov.	7	3	15	6	1	32
JP	6 Dec.	2	3	7	4	1	17
CM, SB	15 Jan.	3	6	10	5		24
CM, SB	16 Jan.	6	8	13	3		30
Totals		33	35	86	41	6	201

more reliable. It is unlikely that any second-winter birds were included in the first-winter total, as Snow indicates that the moult is usually complete in September. In addition, no birds ringed as "first-winter" were retrapped as "adult" in the spring.

Full data for seven visits to Fulbourn between the end of October 1960 and the middle of January 1961, and of fifteen visits to Coton between the end of October 1960 and the end of February 1961, are given in Tables 1 and 2. The figures in these tables include all Black-

TABLE 2—NUMBERS OF BLACKBIRDS (*Turdus merula*) CAUGHT AT COTON, CAMBRIDGESHIRE, IN THE WINTER 1960-61

Ringers were S. Boddy (SM) and C. J. Mead (CM). Age abbreviations are as given in Table 1

Ringers	Date	Ad. ♂	Ad. ♀	1stW. ♂	1stW. ♀	F.g. ♂	F.g. ♀	Total
CM, SB	27 Oct.		2	8	2		1	13
CM, SB	28 Oct.	1		9	1	1		12
CM, SB	30 Oct.	1	2	12	9			24
CM, SB	5 Nov.	5	1	13				19
CM, SB	6 Nov.	5	3	19	13		7	47
CM, SB	10 Nov.	4	8	19	11		5	47
CM, SB	19 Nov.	7	1	34	6		2	50
CM, SB	21 Nov.	2		7	7		2	18
CM, SB	28 Nov.	1	4	12	5		2	24
CM, SB	14 Jan.	7	6	15		1	7	36
CM, SB	20 Jan.	8	4	20	9	1	7	49
CM, SB	23 Jan.	8	4	11	7		3	33
CM, SB	12 Feb.	7	6	28	5		7	53
CM, SB	15 Feb.	4	4	3	2		4	17
CM, SB	23 Feb.	4		8	3		2	17
Totals		64	45	218	80	3	49	459

from the point of view of analysis. The greater conspicuousness of males, for example, introduces an unknown error, and, in addition, accurate ageing of birds is impossible. Some of the records quoted were taken from several years, so that no account is taken of possible annual variation. Records of birds caught in conventional traps may also be unreliable, as indicated by Lack and Light (1941) who argue that, by analogy with Robins (*Erithacus rubecula*), male Blackbirds may enter traps more freely than females. It is possible that even bat-fowling records may be misleading, owing to sexual segregation in roosts, unless a sufficiently large sample is taken. It is therefore of considerable interest that the records cited below, which were all obtained by the operation of scattered mist-nets, agree very closely with the results given by Venables.

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Full data for seven visits to Fulbourn between the end of October 1960 and the middle of January 1961, and of fifteen visits to Coton between the end of October 1960 and the end of February 1961, are given in Tables 1 and 2. The figures in these tables include all Black-

TABLE 2—NUMBERS OF BLACKBIRDS (*Turdus merula*) CAUGHT AT COTON, CAMBRIDGESHIRE, IN THE WINTER 1960-61

Ringers were S. Boddy (SM) and C. J. Mead (CM). Age abbreviations are as given in Table 1

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CM, SB	15 Feb.	4	4	3	2		4	17
CM, SB	23 Feb.	4		8	3		2	17
Totals		64	45	218	80	3	49	459

birds caught, the proportions of retraps being 9.7% at Fulbourn and 27.7% at Coton.

It will be seen that it was not possible to age a number of the females with confidence, these being given as "f.g.". These amount to 7.3% of the total number of females caught at Fulbourn, and 28.2% of the female total at Coton (although only 3.0% and 10.7% of all the birds trapped). Consequently a grave error was introduced into the calculation of quantities involving knowledge of the female age ratio, so much so that these calculations for Coton birds are virtually worthless and have been enclosed in brackets in Table 3, which summarises the age and sex percentages.

The range of values for the percentage of males given in the two papers by the Venables is, excluding samples of less than one hundred birds, 53.9% to 65.6%. The fact that the figures obtained by mist-net sampling lie well in the middle of this range is an indication of the efficacy of the census methods used by the other workers. There is strong disagreement with the percentage of first-winter males, however, although there is agreement on this between the Fulbourn and Coton figures. The range of figures for the percentage of first-winter birds in the male total given by Venables (1961) is 34.8% to 46.2%, a ratio of 2: 3, whereas the mist-netting figures show an average adult male to first-winter male ratio of 1: 3. This may be due to the unreliability of the bill as an ageing character.

It would appear that there is very approximately a 1: 1 sex ratio in the adults, and that the sex disparity is found among the young birds. In this connection W. D. Campbell's results in Venables (1952) are of interest: of 180 adults obtained by bat-fowling, exactly 90 (50.0%) were male; but of 99 first-winter birds, at least 63 (63.6%) were male. These results are contrary to those quoted by Lack (1954, p. 109), which indicate that the sex disparity is to be found in the adult, but not the yearling, population.

TABLE 3—AGE AND SEX PERCENTAGES OF BLACKBIRDS (*Turdus merula*) IN TABLES 1 AND 2

Age abbreviations are as given in Table 1. Birds listed in Tables 1 and 2 as "f.g." have been excluded here, so that all "% 1stW." figures are the first-winter percentages of the ad.+1stW. total. At Coton "f.g." birds formed such a high percentage of the female total as to make the percentages in brackets of very doubtful value (see text above)

	% ♂	% 1stW.	% 1stW. ♂ of all ♂♂	% 1stW. ♀ of all ♀♀	% ♂ of all ad.	% ♂ of all 1stW.
Fulbourn	59.2	65.1	72.3	53.9	48.5	67.7
Coton	62.1	(73.2)	77.3	(64.0)	(58.7)	(73.1)

TABLE 4—NUMBERS OF BLACKBIRDS (*Turdus merula*) RETRAPPED AT COTON, CAMBRIDGESHIRE, IN THE WINTER 1960-61

	Total number caught at Coton	Retraps of birds ringed at Coton	Retraps of birds ringed elsewhere
Males	285	47	35
Females	174	39	6

Drost (1935) shows that females predominate over males as migrants at Heligoland, in the ratios 3:2 in autumn and 2:1 in spring; and, as the male preponderance seems to be general throughout the British Isles, it may be found that females predominate in some places on the Continent. Drost's figures for adult to first-winter ratios were:

(autumn) ♂♂ 100:182.4 ♀♀ 100:168.0
(spring) ♂♂ 100:140.9 ♀♀ 100: 90.8

These are in fair agreement with the Cambridge results.

It is perhaps relevant that Lack has calculated (on the basis of ringing results up to 1934) that the average annual mortality rate of Blackbirds ringed in Britain in winter is slightly greater for females (50%) than males (46%).

C. J. Mead, assisted by S. Boddy and S. L. B. Lee, has carried out a statistical analysis of the Blackbird samples obtained at Coton, using χ^2 significance tests. The ratio of adult males to first-winter males was significantly greater in spring (January and February) than in autumn (October and November) ($P=0.05\%$). The figures for females were, unfortunately, not amenable to analysis, but there was no significant alteration of the total male to female ratio throughout the period. The retrap figures were also analysed. About four hundred Blackbirds were ringed during the winter at three other roosts within a mile of Coton, and a number of exchanges between roosts occurred. The number of retraps of birds from other roosts at Coton thus increased markedly during the season, and it was found that many more males than females, in proportion to the male to female ratio for the whole population, were among these ($P<0.01\%$). The numbers of retraps are shown in Table 4.

These results indicate that males are more likely to move around locally than females, although the general sex ratio remained constant. The increase in the ratio of adult males to first-winter males during the season indicates either an exodus of first-winter males, balanced by an exodus of first-winter females to maintain the sex ratio, or an influx of adults. To explain these figures simply by a differential mortality rate between adult and first-winter males, over half the first-winter

males alive in mid-November would have had to have died before the end of January, in a ten-week period. Lack (1954, p. 83) shows that first-year birds do have a higher winter mortality rate, but that this is not generally greater than about 30% above the adults' over a six or eight month period from September. In fact he has shown elsewhere (Lack 1946) that, after November, first-year Blackbirds have a mortality rate per annum only 5% above that for adults.

As far as other Turdidae are concerned, a number of Redwings and Fieldfares were also aged and sexed at Fulbourn Fen during the winter of 1960-61, the characters used again being those given in Cornwallis and Smith (1960). Of 63 Redwings, ten were adult and 53 first-winter, giving a ratio of 1: 5, and of 51 Fieldfares, 16 were adult and 35 first-winter, giving a ratio of 1: 2. Meanwhile, of 47 Fieldfares which were sexed, 34 were females and only 13 males, a male to female ratio of 2: 5. Although the samples are too small for firm conclusions, the adult to first-winter ratio of the Redwings and the sex ratio of the Fieldfares differ considerably from the corresponding Blackbird figures (1: 2 and 3: 2), although the Fieldfare age ratio is the same. It is uncertain whether this represents a real difference or whether the characters used for ageing and sexing the Redwings and Fieldfares were inaccurate criteria.

At Coton 169 Song Thrushes were caught at the same time as the Blackbirds and only 10% of these were retraps. The retrap rate was significantly different from the Blackbird rate ($P<0.01\%$). Coupled with the fact that many more Blackbirds were caught, this suggests that the population was a very mobile one, a conclusion supported by a consideration of the ratio of Song Thrush to Blackbird numbers, which varied from 0.94 in October to 0.21 in late November, but had increased to 0.41 in January.

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Notes

Hudsonian Whimbrel on board ship in the eastern Atlantic.—On 24th August 1960, a Hudsonian Whimbrel (*Numenius phaeopus hudsonicus*) was seen on board the S.S. *Birmingham City* during a crossing of the Atlantic from west to east. I first noted it at 0600 hours when the position of the ship was 50°21′N, 14°23′W, or 191 miles west of the Fastnet light, Co. Cork, and it remained with us for over nine hours, during which time we were travelling at an average speed of 9½ knots. It spent most of the day on the deck, flying very occasionally and only when disturbed. It would allow approach to within a few feet and its flight was very weak. It was, therefore, easy enough to note the plumage characters which distinguish this unmistakable race—the combination of a typical Whimbrel head pattern and a dark rump. It was a size smaller than a Curlew (*N. arquata*), with a shorter and straighter bill; its legs were blue-grey. A clear longitudinal buff stripe on the crown was bordered on either side by a dark brown line. The wings, back and tail were brown, spotted with whitish buff; the primaries were black with white central vanes.

It was on one of the occasions that it was disturbed that it met its end. After flying around it tried to land on board again but hit the side of the ship and fell to the water. There it floated, partially submerged, with wings half outstretched and head just above water; it seemed unable to move, and was not seen again. This took place at 1510 hours, when the position of the ship was 50°52′N, 12°15′W, or 105 miles from Fastnet. STEPHEN CHAPMAN

[Mr. Chapman has kindly supplied two photographs of the bird and these completely confirm his identification. There is only one fully authenticated British record of this very distinctive North American race of the Whimbrel and that was on Fair Isle in May 1955 (*Brit. Birds*, 48: 379-381.—EDS.]

Ruff displaying to Spotted Redshank and Long-tailed Skuas. R. G. H. Cant recently described an interesting record of a Ruff (*Philomachus pugnax*) displaying to a Knot (*Calidris canutus*) in Suffolk in July (*Brit. Birds*, 54: 205). I watched similar behaviour by a Ruff on the Sautso plateau in northern Swedish Lapland on 15th June 1949, but on that occasion the partner was a Spotted Redshank (*Tringa erythropus*) which showed no reaction whatsoever to the other bird's posturing during the ten minutes or so that it lasted. This Ruff made no attempt to copulate as in the case witnessed by Cant, but performed before and around the Spotted Redshank, as it does in

front of another male of its own species, executing its whole repertoire of "fighting" display attitudes. The presence of the solitary Spotted Redshank thus released in the Ruff the phases of display behaviour which are connected with encounters between males, while in the other case a Knot "in full summer plumage" released in the Ruff a characteristic courting display as before a Reeve, followed by the offering of pieces of vegetation and feathers, as well as attempts to mount.

Single Ruffs sometimes display towards the Long-tailed Skuas (*Stercorarius longicaudus*) which share their habitats in Swedish Lapland, but the skuas are invariably quite indifferent. I have also seen solitary Ruffs displaying quite by themselves, going through all the postures, jumps and so on as if they were fighting with an invisible adversary. Thus the innate display urge in the Ruff may be so strong that a lone individual does not necessarily need any external releaser in the form of congeners or other birds. KAI CURRY-LINDAHL

Black-headed Gulls feeding in conjunction with Goosanders.—A flock of nine or ten Goosanders (*Mergus merganser*), all brown-headed birds, spent much of December 1959 and January 1960 on some gravel-pits at Little Paxton, Huntingdonshire, where there is an abundant supply of coarse fish. On 15th and 17th January, I watched them feed at close range. The flock acted coherently, all the birds diving at the same moment and all moving in the same direction, though inevitably coming up at varying intervals. On the first occasion a Black-headed Gull (*Larus ridibundus*) was showing great interest in the feeding Goosanders, and on the second there were three in attendance. The gulls remained on the surface, picking up small titbits that seemed to appear as a result of the mass diving of the ducks. If the latter surfaced away from them, they would quickly rise and settle among them again, following them wherever they went. There was no sign of aggression or resentment by either species, although when a Goosander surfaced almost underneath one of the Black-headed Gulls, both appeared momentarily startled. C. F. TEBBUTT

[Behaviour of this kind is not uncommon with gulls and Red-breasted Mergansers (*M. serrator*), but it seems that it has seldom been described.—EDS.]

Brünnich's Guillemot in Lancashire.—On 15th April 1960, I picked up a dead Brünnich's Guillemot (*Uria lomvia*) on the tide line at Middleton Sands, near Morecambe, Lancashire. It was an adult in winter plumage and when found was in fair condition except that it was slightly oiled on the upper-parts. The body was quite intact, though the tail appeared to be slightly worn and the eyes had either decom-

posed or been picked out. Later that afternoon I informed a friend, Michael T. Rigby, and together we examined the bird, making the following detailed description:

Upper-parts: whole crown and nape blackish-brown, this cap extending well below the eye to the level of the gape; feathers on mandibles reaching to nostrils; lores and ear-coverts blackish; hind neck, mantle, back and rump blackish-grey; tail more blackish-brown; scapulars and whole of upper wing uniform blackish-brown, except inner webs of primaries which were dusky white and secondaries which were broadly tipped white. *Under-parts:* chin and throat white; feathers at edge of chin black; remainder of body pure white; leading edge of under-wing streaked and spotted medium brown; underside of flight feathers silvery-brown; rest of underwing white; axillaries white, tipped brown. *Soft parts:* bill mainly black, but gonys and tips of both mandibles horn-coloured; from the nostril to the gape along the cutting edge of the upper mandible was a prominent bony ridge which was whitish in colour, inclining to yellow at the angle of the gape; inside of mouth medium yellow; toes and inside of tarsus pale yellow-brown, with outside of tarsus darker, "ankle" blackish and webs blackish-brown; claws black. *Measurements:* bill (feathers to tip) 37 mm., greatest depth (across nostril) 15 mm., length of ridge along cutting edge of upper mandible (nostril to gape) 37 mm., length of gonys 22 mm.; tarsus 38 mm.; tail (rather worn) 40 mm.; wings 220 mm. (right) and 222 mm. (left). *Wing formula:* 2nd primary longest, 3rd 6 mm. shorter, 4th 14 mm. shorter, 5th 24 mm. shorter, 6th 34 mm. shorter.

The head was wedge-shaped, with the crown flat and a gentle slope to the upper mandible. The bill was comparatively short and thick, and strongly decurved towards the tip of the upper mandible. Indeed, the short thick head and bill were the bird's most striking feature. Otherwise, its shape was typical of a guillemot. It had a long neck and body, with a relatively short tail, long narrow wings, and legs set far back. Its total length from bill to tail was about 16 inches.

This is the first record of Brünnich's Guillemot in Lancashire and it also seems to be the first for the western side of Britain. Unfortunately, the corpse was in poor condition after we had finished with it and we considered it too far gone to be worth preserving. The under-parts became discoloured and the feathers of the neck very ruffled. After two days the bird began to smell strongly and we had no alternative but to dispose of it. However, I took the precaution of photographing it before doing so and I believe the results confirm the identification.

K. E. HAGUE

[It is most unfortunate that there was no attempt to preserve this bird or any part of it. The identification of this species is not always as foolproof as might be imagined from *The Handbook*, even with the specimen in the hand. In 1946, R. Wagstaffe and K. Williamson published a paper on "The invalidity of some early records of Brünnich's Guillemot in Britain" (*North Western Nat.*, 21: 20-26) and in it they drew attention to the fact that long immersion in sea water causes

a contraction of the skin at the base of the bill of the Guillemot (*U. aalge*), with the result that a whitish "ridge" is exposed along the tomia. The effect produced is not unlike the white line along the edge of the base of the upper mandible of Brünnich's Guillemot, and confusion has certainly resulted in the past. The bird in the foreground of the illustration of Brünnich's Guillemot in T. A. Coward's *The Birds of the British Isles* (vol. 3, plate 105) is clearly painted from a mis-identified skin of the commoner species. In the present case, the detailed description by itself is barely adequate and the bill measurements are well within the range of *U. aalge*. Indeed, were it not for the photographs, which unfortunately are not good enough for reproduction, it might not have been possible to accept this record. Luckily, however, the photographs prove that the shape of the bill, particularly the steep slope of the lower mandible between the tip and gonys, was that of *U. lomvia*, and that the feathering extended from the base of the bill to the gonys, which it does not do in *U. aalge*. In addition, the photographs show no evidence of even the slightest streaking on the flanks, while the pattern of white on the side of the head is correct for *U. lomvia* and shows no sign of being crossed by the dark curve which is such a feature of the commoner species in winter plumage.

We repeat, therefore, that this record could hardly have been accepted without the photographs, which goes to illustrate how important it is that people who find unusual birds dead should make sure that as much as possible of the specimen is preserved. Several museums are very glad to receive such material, but anyone who is in doubt is asked to send the remains to Alfred Hazelwood, Museum and Art Gallery, Bolton, Lancashire. If the body is in too bad a state to send by post, an attempt at skinning should be made. Even a rough skin is better than none at all. If skinning is impossible, then such parts of the body as head, wings and legs should be saved. A last resort with smaller species is to preserve the body in industrial spirit or 70% alcohol.—EDS.]

Bee-eaters diving into water.—With reference to my previous note on Bee-eaters (*Merops apiaster*) diving into water, and the observations of others which followed (*Brit. Birds*, 53: 130-131, 222 and 404-405), I should like to record that C. Benson and I witnessed a further instance of this behaviour at a small dam on the Leopardshill Ranch some thirty-five miles south-east of Lusaka, Northern Rhodesia, on 4th December 1960. This dam is surrounded by a belt of low reeds 40-50 yards wide, which in turn is surrounded by scattered acacia scrub. A flock of about twenty Bee-eaters were perching on a couple of the acacia bushes and were making short glides to the water, plunging in but not submerging, then quickly returning to their

perches, only to repeat the performance again and again until they were frightened off by our approach. It appeared that they were feeding because one bird, after rising from the water, dropped some thing and immediately turned to plunge in after it; it evidently recovered the object for it was seen to be swallowing something as it flew off. However, it should be added that we noted only one other bird swallowing. A. J. TREE

Swallows rearing brood in Spotted Flycatchers' nest.—In late May 1960, a pair of Swallows (*Hirundo rustica*) returned to the garage of a house at South Benfleet, Essex, where they had nested for the previous two years. The owners of the house went on holiday for three weeks. When they returned, they found the Swallows' nest on the ground. Meanwhile a pair of Spotted Flycatchers (*Muscicapa striata*) had built their nest on the flat top of a brick pier supporting a verandah at the rear of the house. The eggs from this nest were found smashed on the stone floor a day or two later. Immediately afterwards, the Swallows took possession of the flycatchers' nest without adding any mud or other material. I saw it in the first week of June when four eggs had been laid, and again in early July when the young were well-feathered and almost ready to leave. By this time the nest had completely disintegrated from their activities (young Swallows spend nearly twice as many days as young Spotted Flycatchers do in the nest) and not a vestige of the material remained. The chicks were left sitting on top of the bare bricks, but they fledged safely. H. R. TUTT

Blue Tits roosting in street lamps.—The street lighting in Salisbury, Wiltshire, is by sodium discharge lamps. The original installation covered the whole city and was complete by September 1939. For minor roads, lanterns are mounted 15 feet above the road and have 60 watt lamps. These lamps are held in a horizontal plane and have a reflector plate above the bulb. There is a gap of about two inches between this plate and the lantern roof and sides. This space is used as a roosting-site by Blue Tits (*Parus caeruleus*), as shown in Fig. 1.

Observations were made at a circuit of 34 lamps in Bouverie Avenue and Francis Way during August, September and October 1959. On each of the 41 days on which this was done, at least eight of the 34 lamps were occupied. On 13 occasions no less than twelve had Blue Tits in them. The highest number of birds found during August and September was 13, but there was a marked rise during October and on eight of the 14 days in that month when observations were made, 14 or more of the lamps were occupied; there was a maximum of 19 on 26th October. Two lamps were occupied on each of the

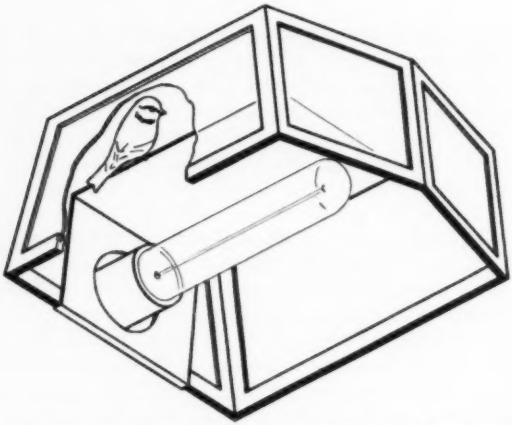


FIG. 1. Part section of street lantern used in Salisbury, Wiltshire, to show position of roosting Blue Tit (*Parus caeruleus*) on reflector plate

41 days. The average number of birds present in August (13 days) was 11.2, in September (14 days) 11.6 and in October (14 days) 14.1.

Blue Tits are the main users of these lamps, but Great Tits (*P. major*), Wrens (*Troglodytes troglodytes*) and House Sparrows (*Passer domesticus*) also occur. The habit is not confined to Salisbury for one of the 14 lamps of similar design examined at Christchurch, Hampshire, during November 1959, was occupied by a Blue Tit. I am grateful to Mr. G. H. Forster for this latter observation and also to the Salisbury City Engineer, Mr. H. Rackham, for details of the lamps.

F. P. ERRINGTON

[Mr. Michael J. Carter has also sent us an account of a Blue Tit (not necessarily only one individual) roosting in a street lamp at Epsom, Surrey, regularly each winter since 1955-56. He particularly comments on the fact that this bird thus roosts in a brightly illuminated and heated chamber in contrast to the usual dark hole. Roosting in street lamps is, however, an old habit of Blue Tits in London and surrounding towns (see *The Birds of the London Area since 1900,* p. 238).—EDS.]

Coal Tit plucking fur from remains of Field Vole.—On 17th April 1961, at Clapgate, near Wimborne, Dorset, I noticed a Coal Tit (*Parus ater*) plucking fur from the remains of what looked like a Field Vole (*Microtus agrestis*). It held the corpse down with both feet, and was only able to extract the hair with considerable effort. Eventually it flew away holding a large wad of fur in its bill. My only previous experience of this nature concerned a Yellow Wagtail

(*Motacilla flava*) which was plucking the white hair from the belly of a dead Hare (*Lepus europaeus*) at Notton, near Chippenham, Wiltshire, on 22nd May 1947 (*Report Nat. Hist. Section Wilts. Arch. & Nat. Hist. Soc. 1947*, p. 234).

[There may be nothing unusual about this behaviour. It is normal for Coal Tits to line their nests with hair or down and one would expect them sometimes to collect the former from dead mammals. Jackdaws (*Corvus monedula*) and Starlings (*Sturnus vulgaris*) regularly pluck moulting hair from the backs of donkeys, sheep and cattle. However, there seem to be few actual published records of small Passerines obtaining their nest material from corpses, though Dr. N. Tinbergen adds that he has seen a Wheatear (*Oenanthe oenanthe*) pulling wool from the body of a dead sheep.—EDS.]

Female Blackbird attacking shrew.—In July 1959, at Itchenor, Sussex, I watched a Blackbird (*Turdus merula*) attacking something which I thought at first was a large bumble-bee. She kept flying to the ground, picking this thing up, flying a short distance, dropping it, and then repeating the procedure over and over again. Eventually, on hearing shrill squeaks coming from this object, I approached the Blackbird (a very tame female which we had helped to feed when, as a very sickly youngster, she was deserted by her parents soon after leaving the nest). The bird dropped the object, which by now was rather dazed by all its falls, and I was able to identify it as a shrew (*Sorex* sp.) before it finally darted off. F. E. LANCHESTER

Fungus disease affecting Robins and other species.—On 21st February 1961, E.A.S. saw an almost completely bald Robin (*Erithacus rubecula*) at the feeding tables in her garden sanctuary at Welwyn, Hertfordshire. On the 23rd we both watched it and E.H. was able to obtain several photographs, two of which are reproduced on plate 49. The bird is shown there with two Blue Tits (*Parus caeruleus*) and it is worth adding that we noted no animosity from other species towards it. On the other hand, even for a Robin, it was unusually aggressive towards it own kind. Though it lacked the majority of the feathers on the upper side of its head and could only partly open its eyes, which was obviously a considerable handicap when picking up food, it seemed strangely vigorous and its ability to fight was unimpaired. During the six days it was in the garden it was apparently very hungry and it gradually became more and more aggressive, continually driving off other Robins (at this time five or six were regularly visiting the tables). On more than one occasion E.A.S. saw it on top of another Robin which it was attacking fiercely on the ground.

On 27th February, the bird was found dead and thereupon sent to

the Central Veterinary Laboratory of the Ministry of Agriculture, Fisheries and Food, at Weybridge, Surrey, where it was found to be a female in very poor condition. The following is an extract from their report, dated 7th March:

> "On post-mortem examination the carcase was found to be very decomposed, but there was no evidence of any specific bacterial disease. Although the skin lesions on the head and chin superficially resembled favus of poultry, our mycologist has been unable to isolate the fungus which causes this particular disease. A type of fungus has been isolated, but it is not a species which is known to be pathogenic and so far it has not been identified. Several years ago a Blackbird (*Turdus merula*) was received for examination at this laboratory, which showed similar skin lesions involving the head and also the region of one of the hocks. From that specimen, however, no fungus was isolated and, therefore, the fungus which is present in this case may be purely secondary. No external parasites were found in association with these lesions. Pox causes skin lesions in birds, but they in no way resemble the lesions present on this specimen."

It is disappointing that it was not possible to isolate a known fungus from the Robin, but diseased birds are so rarely seen that it seems worth placing these facts on record. Moreover, this is apparently not an isolated case, in that E.A.S. has recently had a number of other birds with feathers missing from the area of the head. These are still to be seen in the garden at the present time (mid-June). They include another Robin, though this is affected on one side of its head only. A male Blackbird had some feathers missing round its beak in February and has subsequently lost most of those on the rest of its head; its plumage in general is dull and ragged, but otherwise its condition and behaviour seem normal. A Dunnock (*Prunella modularis*) has lost all the feathers from the front of its head, but in other ways appears unaffected. The most serious case, however, involves a Great Tit (*Parus major*) which lost all its head and facial feathers over a period of about two weeks; its skin is blue-grey, but where the feathers have recently been it is pink and looks tender. This bird also seems surprisingly happy and feeds well, and if, as appears likely, it is the same infection which is attacking all these birds, one wonders whether the fungus disease was, in fact, the actual cause of the original Robin's death. On the other hand, a similarly affected Dunnock did die in the garden some years ago (unfortunately no details were kept).

EILEEN A. SOPER and ERIC HOSKING

[We should be very glad to receive any similar observations.—EDS.]

Goldcrest eating bread.—The following observation may be of interest in connection with Sir Julian Huxley's note on a Goldcrest (*Regulus regulus*) eating bread and fat (*Brit. Birds*, 53: 578). On 2nd

January 1961, we were told that a Goldcrest had begun to take food put out on a first-floor window-sill at Ambleside, Westmorland, and that same day we were able to watch one of its visits. The food on the sill included moist bread, fat and cooked potato, but the bird ate only minute pieces of the bread. J. B. and S. BOTTOMLEY

House Sparrows and other birds drinking nectar from greengage blossoms.—The following observations may be of interest in connection with the recent paper by J. S. Ash, P. Hope Jones and R. Melville on "The contamination of birds with pollen and other substances" (*Brit. Birds,* 54: 93-100).

On 3rd April 1961, I was looking out of the window of my house at Melbourn, Cambridgeshire, when I noticed half-a-dozen House Sparrows (*Passer domesticus*) paying particular attention to the blossom on the greengage trees, which was then at its peak. Through binoculars I saw that they were actually inserting their beaks into the centres of the flowers, sometimes hanging nearly upside down to do so. On examining the blossom, I found that the calyx cups were full of a clear liquid which was extremely sweet and not just rain water. This excess of nectar was presumably due to the damp weather of the previous weekend. For this same reason there were few insects about and I could see none in these particular flowers. The birds were not damaging the blossom in any way and their actions were very gentle. Every now and then one would tilt its head backwards slightly and I could only come to the conclusion that they were actually drinking the nectar.

I walked on through my other orchards (about thirty acres of various kinds of plum trees) and found that there were parties of House Sparrows wherever there were trees in blossom, but none on those which had finished flowering. The birds were more difficult to see in the orchards than in the trees near my house, but I was able to watch several House Sparrows, two Tree Sparrows (*P. montanus*), a male and a female Chaffinch (*Fringilla coelebs*) and a Dunnock (*Prunella modularis*) all apparently drinking nectar. There must have been three or four hundred small birds, mostly House Sparrows, spread over the orchards.

CYRIL H. E. HAGGER

Letters

Black-headed Gulls eating acorns

Sirs,—With reference to K. G. Spencer's letter on Black-headed Gulls (*Larus ridibundus*) eating hawthorn berries and acorns (*Brit. Birds,* 54: 130-131) and Miss Sybil M. Butlin's note in the same issue (54: 118),

I should like to draw attention to an observation of mine which appeared in the *Ornithological Report for Northumberland and Durham for 1954* (p. 116). This described how several Black-headed Gulls were seen circling over oak trees in a wood near Howick, Northumberland, on 24th October 1954. They were alighting on the topmost branches and there collecting food, probably acorns. W. S. CRASTER

Sand Martins nesting in heaps of sawdust

Sirs,—With reference to the note and editorial comment on Sand Martins (*Riparia riparia*) nesting in sawdust (*Brit. Birds*, 54: 205-206), I should like to draw attention to the description of a similar site in C. B. Ticehurst's *A History of the Birds of Suffolk* (p. 185). This was in a large heap of sawdust at a sawmill at Brandon, Suffolk. In 1876 a considerable number of burrows were excavated by the birds, and Sand Martins were still nesting in the same place twenty-five years later.

B. S. NAU

[Dr. N. F. Ticehurst points out that this colony, which was adjoining the railway station at Brandon, was also recorded in Yarrell's *A History of British Birds* (4th ed., vol. 2, p. 358) and in *The Zoologist* (series 2, p. 5108). He adds that he himself saw the colony several times in 1893 and the following three years; there were well over a hundred pairs there then.—EDS.]

Sirs,—Dr. R. A. F. Cox's note on Sand Martins (*Riparia riparia*) in sawdust (*Brit. Birds*, 54: 205-206) prompts me to draw attention to a similar record described by W. Fuchs and E. Rüedi in *Der Ornithologische Beobachter* (56: 30), under the title "Sägemehlhügel als Nistplatz der Uferschwalbe in Schweden". The same authors also quote P. O. Swanberg and Dr. Bertil Hanström to show that Sand Martins have been found nesting in such sites in several Swedish provinces, even though "only seldom" or "exceptionally". E. SUTTER

Bird Observatories "Flying Squad"

Sirs,—The Nuffield Grant Committee of the British Trust for Ornithology, in conjunction with the Bird Observatories Committee, announce a scheme which they hope will help to alleviate the manning problem at certain of the bird observatories, and at the same time assist those bird-watchers who are keen to devote holiday time to constructive field-work in migration study.

Coverage during the autumn season is required at a number of the observatories, e.g., Cape Clear, Tory Island, Lundy, Isle of May, Great Saltee, etc., and the intention is to form a "Flying Squad" of bird-watchers who are able and willing to step into the breach at one

or other of these stations and keep the observations and ringing going. Members of the "Flying Squad" would be directed to the observatory most in need of manpower at the particular time, and would receive a grant of £5 per person to help towards the expenses of the trip.

Any bird-watcher interested in taking part in this experimental venture, which is designed to get as complete and even a coverage of the autumn migration as possible, should write to me at the British Trust for Ornithology, 2 King Edward Street, Oxford, with a note of (a) the dates between which he (or she) is available, (b) his previous experience of bird observatories, (c) whether he is the holder of a ringing permit, and (d) three or four observatories he would like to visit, in order of preference. KENNETH WILLIAMSON

Recent reports and news

By I. J. Ferguson-Lees and Kenneth Williamson

[These are largely unchecked reports, not authenticated records]

This summary is mainly concerned with the two-month period from mid-April to mid-June and follows on after the one in our April issue (pages 171-172). It deals chiefly with the rarer species, but also covers influxes of certain less unusual birds.

The last few days of April and, more particularly, the beginning and middle of May presented a picture that may now be regarded as more or less annual. Some time in this period every year we expect an influx of **Black Terns** (*Chlidonias niger*) and a scattering of the much rarer **White-winged Black Terns** (*Ch. leucopterus*). Every May, too, we also get several records of other mainly southern and south-eastern species which are generally regarded as rare vagrants to this country. June, on the other hand, is usually a quiet month, but this year it produced a spate of quite surprising records.

BLACK AND OTHER SOUTH EUROPEAN TERNS

In May 1960 the passage of **Black Terns** was unusually large, over four thousand being reported during the peak period, and it lasted for over a week (*Brit. Birds*, 53: 316-317). This year, however, the influx was much smaller and almost all the records were concentrated on one day, 13th May. Although it was a Saturday, this probably represents a genuine peak since the numbers were very small on the Sunday and still smaller on the Friday in areas where regular weekday watching is carried out. The biggest concentration reported was actually a really large one—about 350 at Hanningfield Reservoir (Essex)—and parties of around a hundred were also seen at Queen Mary Reservoir (Middlesex) (80-90), Old Staines Reservoir (Middlesex) (100+) and Pitsford Reservoir (Northamptonshire) (about 110), while gatherings of between thirty and fifty occurred at Abberton Reservoir (Essex), Stewartby brick-pits (Bedfordshire), Eye Brook Reservoir (Leicestershire) and Chew Valley Reservoir (Somerset). All other parties were much smaller, however, and it is significant that every one of these major concentrations took place on 13th May. In most cases the comment was that all had gone by the following day except for one or two odd stragglers. The influx was largely confined to the south-eastern quarter of England and, apart from the Somerset record already mentioned, the only sizeable party elsewhere was one of 22 at Spurn (Yorkshire), again on the 13th.

There was no penetration of north-west England and Wales, such as occurred in 1960. The earliest Black Terns appeared in Sussex and Norfolk on 19th April, in Kent on the 21st, in Northumberland on the 22nd and Dorset on the 24th. Odd stragglers were reported inland up to at least 23rd June.

This year a total of five **White-winged Black Terns** were all in a period of eight days from the time of the Black Tern influx. The first were a single bird at Queen Mary Reservoir (Middlesex) and two at Chelker Reservoir, near Ilkley (Yorkshire), all on the 13th. These were followed by one at Stewartby (Bedfordshire) on the 16th and 17th, and one on the Aberffraw Estuary (Anglesey) on the 21st. A long time afterwards, and quite unconnected, a **Whiskered Tern** (*Ch. hybrida*) appeared at Staines Reservoir (Middlesex) on 24th and 25th June. **Gull-billed Terns** (*Gelochelidon nilotica*) are now of sufficiently regular occurrence in south-east England throughout the summer to be almost outside the scope of this group. However, it is worth mentioning single birds at Herne Bay (Kent) on 8th May, at Selsey Bill (Sussex) on 11th and 28th May, and at Minsmere (Suffolk) on 8th June.

SOUTHERN WATER-BIRDS AND RED-FOOTED FALCONS

The smaller herons are usually included among the annual spring wanderers to Britain and this year was no exception. Indeed, there was something of an influx in the south-west at the very end of April. Three **Purple Herons** (*Ardea purpurea*), two of them probably young birds, appeared on St. Mary's (Isles of Scilly) on 29th April, and the next day an adult and a juvenile **Night Heron** (*Nycticorax nycticorax*) were seen in the same area; all five stayed until 6th May. Meanwhile, the first of three **Little Egrets** (*Egretta garzetta*) seen in Devon this spring made itself at home on Braunton Marshes for several days right at the beginning of May. The other two Little Egrets were in the middle of June, by the River Otter near Budleigh Salterton and on the Axe Estuary on the 13th and 16th respectively (these two Devon localities are only about fifteen miles apart). There was also a further **Night Heron** about this time, near Lyndhurst (Hampshire) on 14th June. Another "regular" is the **Red-footed Falcon** (*Falco vespertinus*) and this year the species was reported from five counties. There was a single male on St. Agnes (Isles of Scilly) on 27th and 30th May; another at Cley (Norfolk) on 30th April and 1st May, and what was presumably a different bird there on the 16th; a male at Ockley (Surrey) on the 13th; a first-summer male at Beachy Head (Sussex) on the 20th; and an adult female at Woodbury (Devon) on the 21st. Single **Black-winged Stilts** (*Himantopus himantopus*) were noted at Sidlesham Ferry (Sussex) on 6th and 16th May, and a pair on Havengore Island (Essex) on 4th June.

The species mentioned so far have, with the exception of the Whiskered Tern, been ones which come every year, but three others should be mentioned before we turn to the Passerines. A **Slender-billed Curlew** (*Numenius tenuirostris*), a bird which at the moment has a very slender claim to inclusion on the British and Irish list, was claimed at Grove Ferry (Kent) on 14th May, and two **Ruddy Shelducks** (*Casarca ferruginea*) flew past Hilbre Island (Cheshire) on the 13th. Ruddy Shelducks are commonly kept in captivity and ones seen at large are usually regarded as escapes, particularly as the species is now getting so scarce in many parts of its European range, but the dates of both these observations are perhaps of some significance when looked at against the general picture which is so concentrated round 13th May. However, it was the first half of April which produced another interesting bird which one assumes must have been an escape. This was a **White Stork** (*Ciconia ciconia*) which was seen at a number of places in north-west England and south-west Scotland in the fortnight following 4th April. Indeed, it made itself so conspicuous that it is possible to map its wanderings almost throughout that period. It first appeared near Southport (Lancashire) on the 4th and in the

next week was noted at Pilling and Leighton Moss. On the 10th it moved into Westmorland and stayed near Windermere until the 13th at least. On the evening of the 15th, it arrived at Gosforth (Cumberland) and left the following morning for Maryport (Cumberland) where it stayed until the middle of the day. On the 17th, 18th and 19th it was seen at Lochmaben (Dumfries-shire).

SMALLER LAND-BIRDS

Turning now to the smaller land-birds, we find an interesting scattering of southern warblers and shrikes. A **Bonelli's Warbler** (*Phylloscopus bonelli*) was trapped and ringed at Walberswick (Suffolk) on 29th and 30th April; a **Subalpine Warbler** (*Sylvia cantillans*) appeared at Pagham Harbour (Sussex) on 17th May; a **Great Reed Warbler** (*Acrocephalus arundinaceus*) was seen and heard at Burton Mere, near Burton Bradstock (Dorset) on 20th May; and **Icterine Warblers** (*Hippolais icterina*) were recorded at Bardsey (Caernarvonshire) on 23rd and 25th May, and at Fair Isle on the 31st. Earlier there had been a **Savi's Warbler** (*Locustella luscinioides*) at Selsey Bill (Sussex) on 10th, 17th and 18th April. Among shrikes, the number of **Woodchats** (*Lanius senator*) was equalled by the number of the normally much rarer **Lesser Greys** (*L. minor*): the only Woodchats reported were at Spurn (Yorkshire) on 31st May and near Cheltenham (Gloucestershire) on 6th June, apart from one in the Isles of Scilly in late May, while Lesser Grey Shrikes were seen at Holyhead Mountain (Anglesey) on 26th May, and at Allet near Truro (Cornwall) on 9th June. A "southern-type" **Short-toed Lark** (*Calandrella cinerea*) stayed on Fair Isle from 20th to 30th April, and a **Tawny Pipit** (*Anthus campestris*) remained on St. Agnes (Isles of Scilly) from 14th to 18th May.

As the **Serin** (*Serinus canarius*) is one of several species currently spreading on the Continent, it is rather satisfactory that there was a small crop of observations this spring. On 1st and 2nd April what must have been one was seen briefly in flight at Dungeness (Kent) and *heard* by an observer very familiar with this species. Unfortunately the circumstances were not good enough to make a valid record, but a Serin was well seen at Dungeness nearly two months later, on 29th May. Meanwhile, there had also been single Serins at Spurn (Yorkshire) on 13th April and at Gibraltar Point (Lincolnshire) on 16th May.

There were several reports of **Golden Orioles** (*Oriolus oriolus*), particularly in the Isles of Scilly and East Anglia, and these included single ones as far north as Gainsborough (Lincolnshire) on 21st May and Bardsey Island (Caernarvonshire) from 5th to 9th May. The latter, a female, was caught and ringed. **Hoopoes** (*Upupa epops*), on the other hand, seem to have been rather scarce compared with most other recent springs. Odd ones appeared in several southern counties between late March and the end of the third week of May, but only a handful altogether. The most northerly reports came from near Selkirk on 17th-18th April, Hull (Yorkshire) during 26th-30th April, and Benderloch (Argyll) on 19th May. That third colourful wanderer from the Continent, the **Bee-eater** (*Merops apiaster*), was reported only once this spring, from Camberley (Surrey) on 9th April.

WESTERN AND EASTERN VAGRANTS

Apart from the vagrants which go to make up the spring picture every year, there were a number of much less expected arrivals. The Whiskered Tern and one or two warblers have already been mentioned. Cornwall had more than her share of the remainder with a **Terek Sandpiper** (*Tringa terek*) at Melancoose Reservoir, near Newquay, on 13th June and a male **Wilson's Phalarope** (*Phalaropus tricolor*) at Marazion Marsh from the 15th to at least the 24th. There are only three British records of the former and only five of the latter, and, since the Terek Sandpiper is an Asiatic bird breeding as far west as Finland while the other is a North American species, one would normally expect such birds to be several thousand miles apart

at that time. The middle of June also provided several other curious stragglers. A **Sabine's Gull** (*Xema sabini*) in the area of Swanage (Dorset) from 13th to 18th June, and an immature **Bonaparte's Gull** (*Larus philadelphia*) at Porto Bello, Brighton (Sussex) on the 20th, taken in conjunction with the Wilson's Phalarope, provide evidence of an arrival from arctic America. On the other hand, the **Sooty Tern** (*Sterna fuscata*) at Hurst (Hampshire) on 17th June must presumably have come north since this species is normally confined to tropical waters.

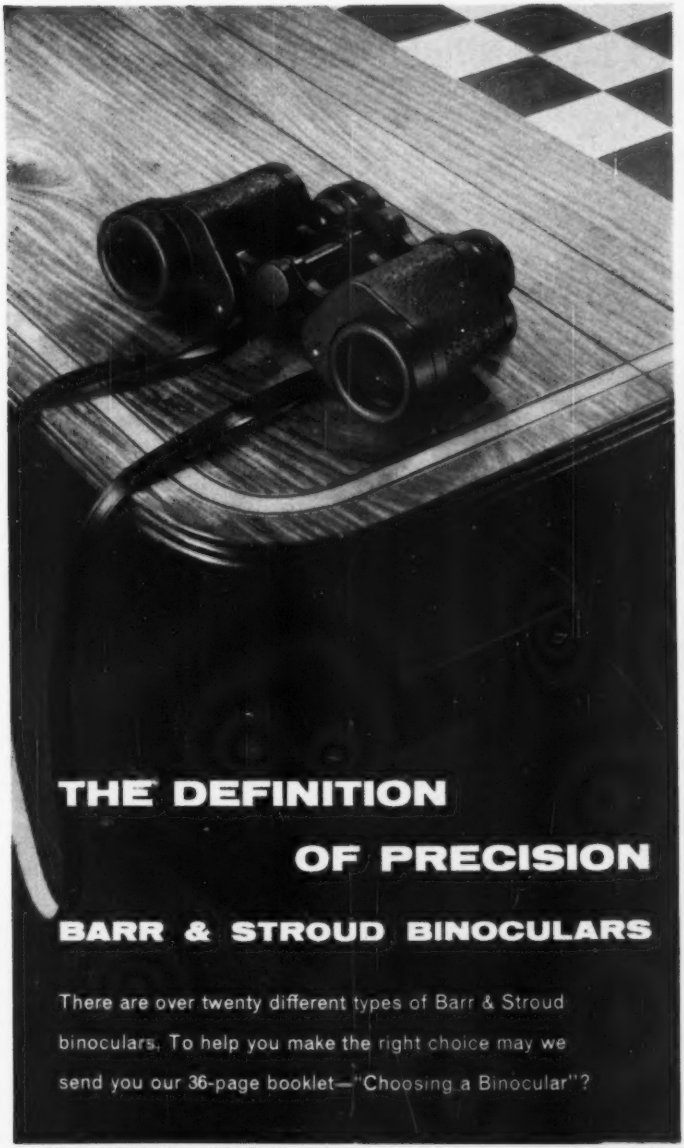
There were several other reports of American species in the middle fortnight of May: a **Greater Yellowlegs** (*T. melanoleuca*) at Holme (Norfolk) on the 6th, a **Lesser Yellowlegs** (*T. flavipes*) at Foulness (Essex) on the 13th, and a **White-throated Sparrow** (*Zonotrichia albicollis*) at Needs Oar Point (Hampshire) on the 19th. We have also now heard of a **Lesser Yellowlegs** by Swords Estuary (Co. Dublin) on 8th April and a **Pectoral Sandpiper** (*Calidris melanotos*) on Duncrue Street Marsh (Belfast) from the 9th to the 13th.

Turning now to the remaining Scandinavian and eastern species, we find that there was an adult **White-billed Diver** (*Gavia adamsii*) in full plumage at Fair Isle on 14th May (about which time unusual numbers of **Great Northern Divers,** *G. immer,* were reported in the Hebrides and other western areas). A **Tengmalm's Owl** (*Aegolius funereus*) was seen on Stromness (Orkney) on 1st May (the one referred to in our last summary was a belatedly received observation from the 1959-60 winter and mentioned in error). There was a **Red-throated Pipit** (*Anthus cervinus*) on St. Agnes (Isles of Scilly) on 13th and 14th May. **Red-headed Buntings** (*Emberiza bruniceps*) included single males on Fair Isle on 20th-21st April, at Cley (Norfolk) on 2nd-3rd May, at Salthouse (Norfolk) on 13th May and at Breydon (Norfolk) next day, on St. Martin's (Isles of Scilly) on 28th May, on Fair Isle again on 5th-7th June (a very obvious escape) and on Little Cumbrae (Buteshire) on 11th June.

Rarity Records Committee: Hon. Secretary

IT IS WITH MUCH REGRET that we have to announce the resignation of G. A. Pyman as Honorary Secretary of the Rarity Records Committee. New professional commitments which began in April have made it impossible for him to continue with the not inconsiderable task of following up several hundred records each year, arranging for their circulation, and preparing the annual "Report on rare birds in Great Britain". We feel sure that our readers will join with us in paying tribute to his great achievements since the Committee was formed in June 1959. In little more than eighteen months he coped with the work of three years, a total of well over a thousand records, and compiled three twenty-page reports. He has made a solid and, we think, successful structure of what was no more than an untried framework when he took it over. Fortunately, he is not severing his connection with the Committee altogether, but continuing to serve on it as an ordinary member.

We welcome as his successor C. M. Swaine, a Gloucestershire schoolmaster who is editor of the North Gloucestershire Ornithological Report and B.T.O. Regional Representative for that area. We hope that all will support him in his new task. His address is Mill House, Rendcomb, Cirencester, Gloucestershire.



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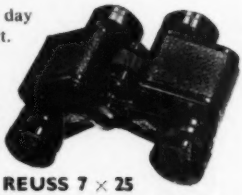

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